



STEYN-WILSON
LABORATORIES Pty (Ltd)

CIVIL ENGINEERING TESTING LABORATORIES

Company Registration Number: 2017/305308/07 VAT Number: 4480278961



11 Gooderson Road Blackheath
PO Box 58 Blackheath 7581
Tel: 021 905 0435
Fax: 086 499 9482
Email: admin@steynwilson.co.za
Web: www.steynwilson.co.za

GEOTECHNICAL INVESTIGATION AND LABORATORY WORK FOR ERICA DRIVE, KUILSRIVER CAPE TOWN August 2018

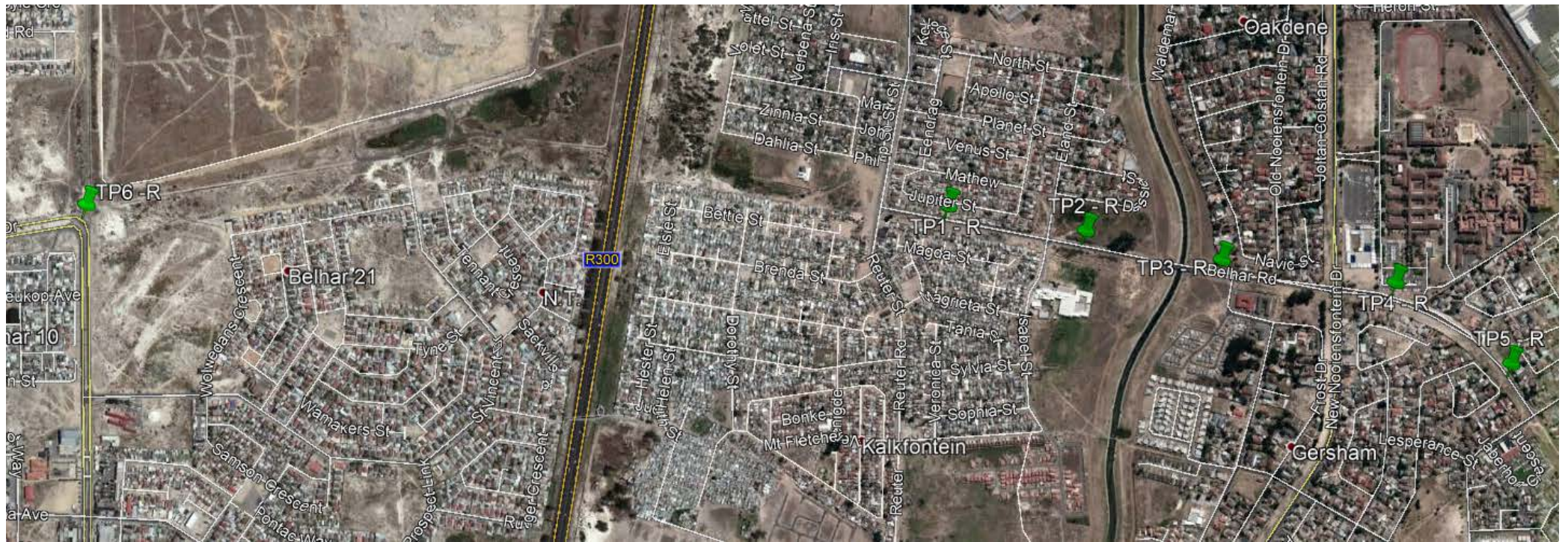


5th Floor, Imperial Terraces
Carl Cronje Drive,
Tyfer Waterfront
Bellville

3785.4 Erica Drive Test Pit Locations – Open Field



3785.4 Erica Drive Test Pit Locations – Existing Road Surface Holes



Erika Drive Test Pit 1 – Location: Open Field

Client: **ITS Engineers**
Project: Erica Rd
Attention: Mr Wilhelm de Klerk
Your Ref. No: -
Date Reported: Tuesday, 14 August 2018

TEST REPORT REFERENCE NUMBER / JOB NUMBER :

SWL01227

Dear Sir / Madam

Herewith please find the original reports pertaining to the above mentioned project.

Stake Value:

TP1

Test Requested

2x MDD / CBR /IND
1x 1m DCP

Site Sampling and Materials Information

Sampling Method: TMH5 Method MC1
Environmental Condition: Moderate

FINAL REPORT

We would like to take this opportunity to thank you for your valued support. Should you have any further enquiries please don't hesitate to contact me.

Yours Faithfully

STEYN-WILSON LABORATORIES (PTY) LTD

Remarks:

- Information contained herein is confidential to STEYN-WILSON PTY LTD and the addressee
- Opinions & Interpretations are not included in our schedule of Accreditation.
- The samples were subjected and analysed according to SANS 3001.
- The results reported relate only to the sample tested, Further use of the attached information is not the responsibility or liability of STEYN-WILSON LABORATORIES (PTY) LTD.
- This document is the correct record of all measurements made, and may not be reproduced other than with full written approval from a director of STEYN-WILSON LABORATORIES (PTY) LTD.
- Measuring equipment is traceable to national standards (Where applicable).
- Should there be any deviation from the prescribed test method comments will be made thereof, pertaining to the test on the relevant materials report.



Mr. R Wilson
Technical Signatory

DIRECTORS: Mr. J. Steyn ND-Civil (Managing) | Mr. R. Wilson B-Tech Civil (Operations)
FINANCIAL MANAGER: Mr. D. Erasmus (SAICA Reg No: 200522562)
LABORATORY MANAGER: Mr. K. Booysen





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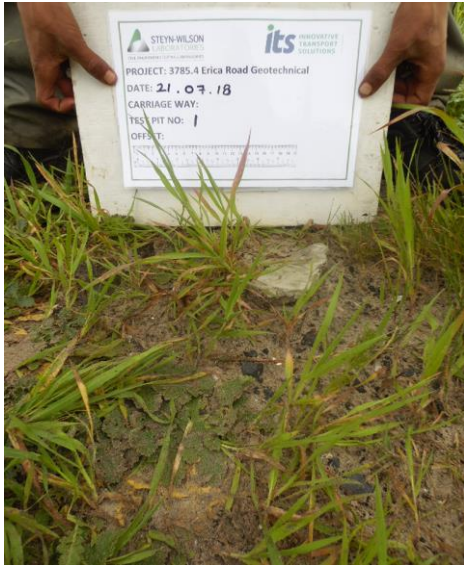
Web: www.steynwilson.co.za

JOB NO:	SWL01227	Ref.	-	DATE:	14-Aug-18
Client	ITS Engineers Carl Cronje Drive Bellville 7530	Project:	Erica Rd	Site / Road:	Erica Rd
Attention:	Mr Wilhelm de Klerk	Stake Value:	TP1	Test Hole No:	TP1
GPS / WGS84	3394130 01864759	Side Walls	Stable	Excavation Method	Pick & Shovel
Refusal		Water table	None	Refusal	None
Sampling Method	TMH5 Method MC1	Environmental Condition	Sunny and Hot with Wind	Water table	None

SOIL PROFILE - GRONDPROFIEL

DEPTH (mm)	PROFILE	DESCRIPTION	SAMPLE No.
0			
0-250 (250)		Sl. Moist, Light Brown, Medium Dense, Silty fine to medium grain SAND, Intact, Top Soil (HCL-)(Phen-)	2536
250-500 (250)		Sl. Moist, Light Olive Brown, Medium Dense, Silty Sandy Hornfels GRAVEL, Intact, Imported (HCL+)(Phen-)	
500-1000+ (500+)		Moist, Light greyish Brown, Medium Dense, Silty fine to medium grain SAND, Intact, Insitu (HCL-)(Phen-)	2537

Surface Visual



Profile



Spoils





STEYN-WILSON
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JOB No: SWL01227 **Ref. No:** - **Date:** 14 August 2018

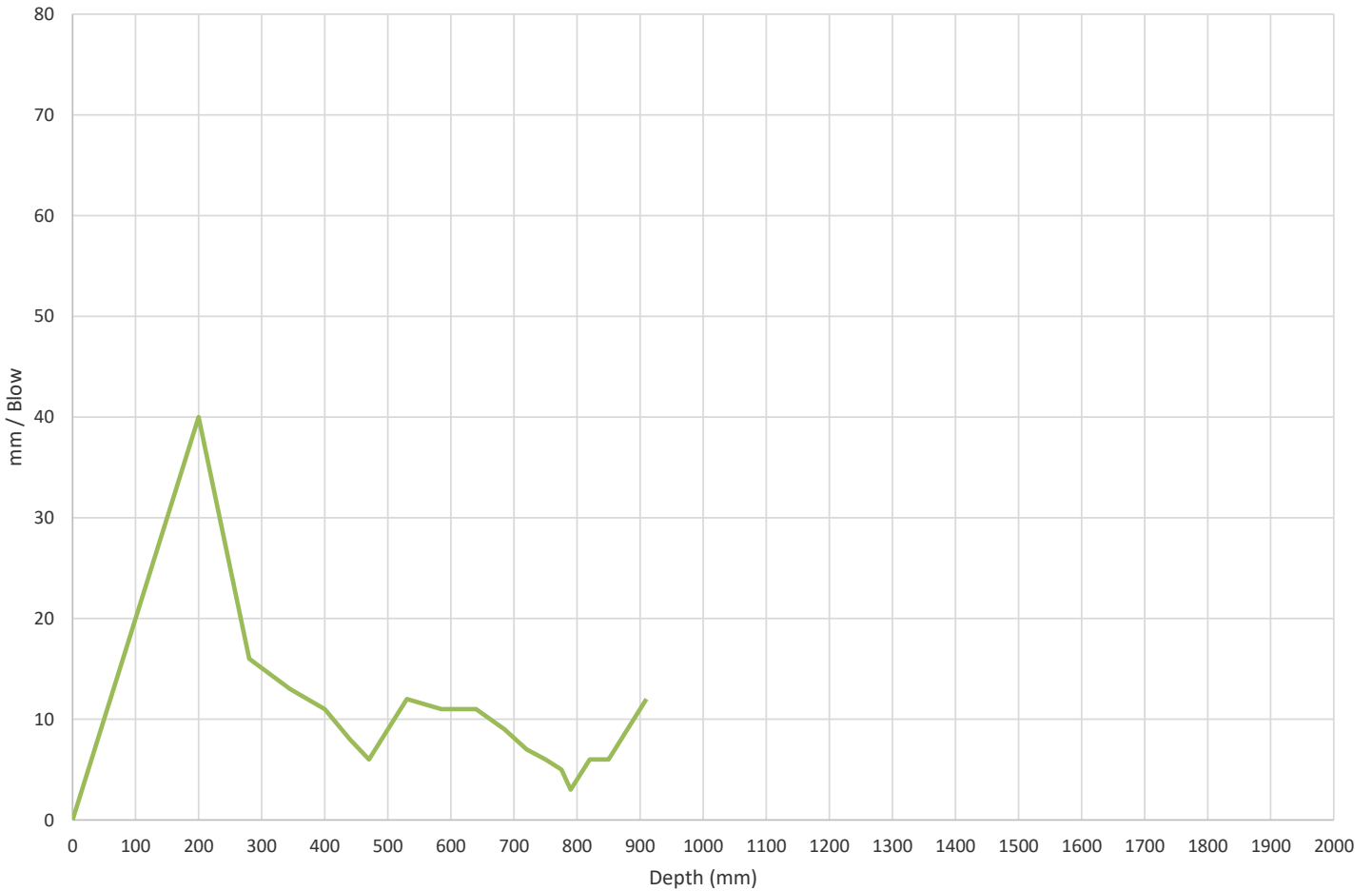
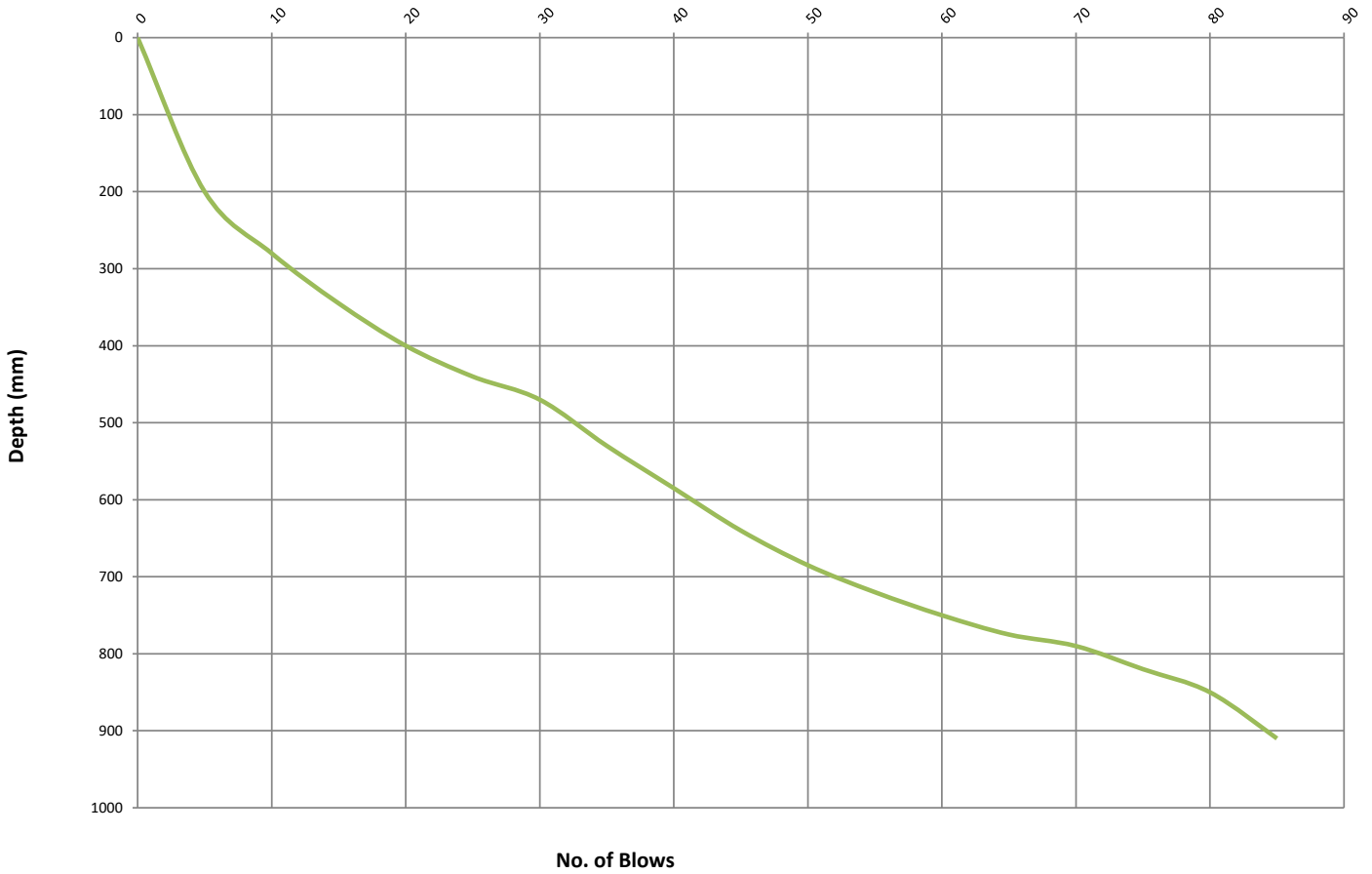
Client ITS Engineers
Carl Cronje Drive
Bellville
7530
Attention: Mr Wilhelm de Klerk

DYNAMIC CONE PENETROMETER TMH6 ST6

PROJECT:	Erica Rd	LEVEL:	1.0m Below NGL
TEST POSITION:	TP1	FOUNDATION:	-
TEST DEPTH:	1m	STARTING DEPTH:	120mm
MATERIAL TYPE:	Sandy Materials	Max. penetration depth:	910mm
CONSTRUCTION TYPE:	Road Construction	REFUSAL:	None
INSTRUMENT (DCP) SET No:	BT2-0003	NOB/TEST:	5

Number of Blows	Depth (mm)	Corrective Depth (mm)	Penetration Tempo	Structure Nr. (dn) mm/blow
0	120	0		
5	320	200	200	40
10	400	280	80	16
15	465	345	65	13
20	520	400	55	11
25	560	440	40	8
30	590	470	30	6
35	650	530	60	12
40	705	585	55	11
45	760	640	55	11
50	805	685	45	9
55	840	720	35	7
60	870	750	30	6
65	895	775	25	5
70	910	790	15	3
75	940	820	30	6
80	970	850	30	6
85	1030	910	60	12

GRAPHICAL REPRESENTATION / DYNAMIC CONE PENETROMETER TMH6 ST6



NOTE: All tests marked with (*) means that those test methods are not accredited.



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CIVIL ENGINEERING TESTING LABORATORIES

JOB NO: SWL01227 **Your Ref** - **Date** 14 August 2018

ITS Engineers
Carl Cronje Drive
Bellville
7530

PROJECT: Erica Rd

ATTENTION: Mr Wilhelm de Klerk

TMH5 MD1, MD2 / SANS 3001 GR1, PR5, GR10, GR12, GR30, GR40

The unambiguous description of the sample/s as received are as follows :

SAMPLE No.	2536	SPEC	2537	SPEC		
HOLE No. / SV. / CHAINAGE	TP1	G6	TP1	G9		
ROAD No. OR NAME	Erica Road		Erica Road			
LAYER TESTED / SAMPLED FROM	0,0 - 0,5m		0,5 - 1,0m			
DATE RECEIVED	21.07.18		21.07.18			
CLIENTS MARKING	None		None			
DESCRIPTION OF SAMPLE (COLOUR & TYPE)	Hornfels Gravel with Fine to Medium SAND		Silty fine to medium grain SAND			
REDUCTION FACTOR / RF CHECK	0,0399		1,0000			
	0,08	< 1%	0,09	< 1%		
SIEVE ANALYSIS (mm) SANS 3001 GR1	100,0	100	100			
	75,0	100	100			
	63,0	100	100			
	53,0	100	100			
	37,5	99	100	-		
	28,0	92	100	-		
	20,0	81	100	-		
	14,0	70	100	-		
	5,00	53	100	-		
	2,00	47	100	-		
	0,425	39	100	-		
	0,075	4	100	-		
ATTERBERG LIMITS SANS 3001 GR10, GR12	LL%	NP	NP	≤ 7		
	P.I.	NP	NP	≤ 12		
	LS%	0.0	0.0	-		
	GM	2,10	2.6≥ GM ≥ 1.2	1,42	2.7≥ GM ≥ 0.75	
SOIL-MORTAR PERCENTAGES SANS 3001 PR5	Coarse sand	18	42			
	Fine sand	74	58			
	Coarse fine sand	21	27			
	Medium fine sand	39	24			
	Fine fine sand	14	6			
	Silt and clay	8	1			
	Coarse sand ratio	0,2		0,4		
MOD AASHTO SANS 3001 GR30	OMC%	7,4	10,2			
	MDD(KG/M ³)	2119	1679			
C.B.R. SANS 3001 GR40	COMP MC	7,1	9,9			
	% SWELL	0.0	0.0	1,50		
	100%	40	-	15	-	
	98%	38	-	13	-	
	97%	36	-	12	-	
	95%	35	25	10	-	
	93%	32	-	8	7	
	90%	30	-	6	-	
Electrical Conductivity TMH1 A21T*						
pH Value TMH1 A20*						
REMARKS / NOTES						

NOTE: All tests marked with (*) means that those test methods are not accredited.

Erika Drive Test Pit 2 – Location: Open Field

Client: **ITS Engineers**
Project: Erica Rd
Attention: Mr Wilhelm de Klerk
Your Ref. No: -
Date Reported: Tuesday, 14 August 2018

TEST REPORT REFERENCE NUMBER / JOB NUMBER :

SWL01227

Dear Sir / Madam

Herewith please find the original reports pertaining to the above mentioned project.

Stake Value:

TP2

Test Requested

2x MDD / CBR /IND
1x 1m DCP

Site Sampling and Materials Information

Sampling Method: TMH5 Method MC1
Environmental Condition: Moderate

FINAL REPORT

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Technical Signatory

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JOB NO: SWL01227 **Ref.:** - **DATE:** 14-Aug-18

Client	ITS Engineers	Project:	Erica Rd
	Carl Cronje Drive	Site / Road:	Erica Rd
	Bellville	Stake Value:	TP2
	7530	Test Hole No:	TP2
		Side Walls	Stable
Attention:	Mr Wilhelm de Klerk	Excavation Method	Pick & Shovel
GPS / WGS84	3394138 01864957	Refusal	None
		Water table	None
Sampling Method	TMH5 Method MC1	Enviromental Condition	Sunny and Hot with Wind

SOIL PROFILE - GRONDPROFIEL

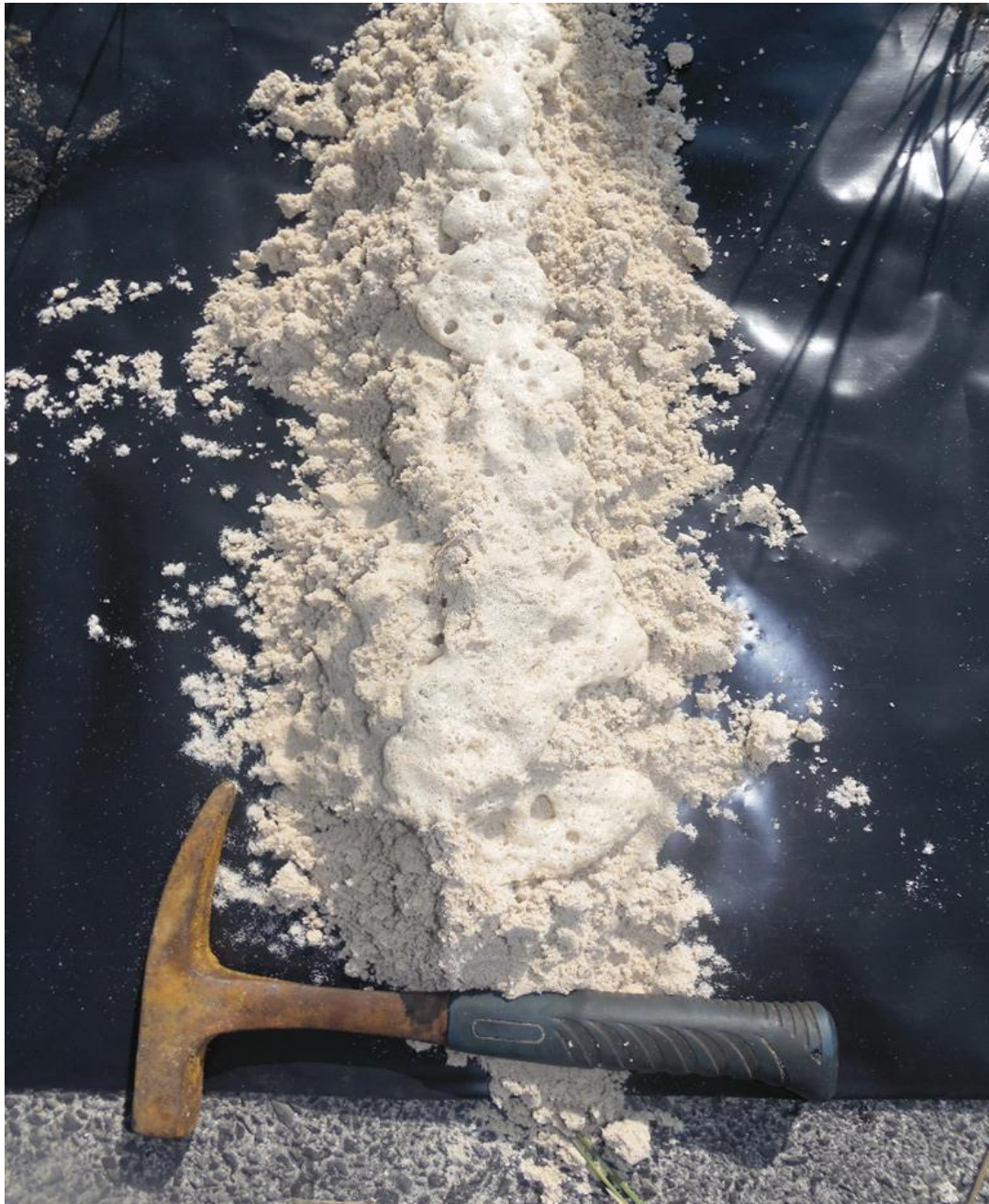
DEPTH (mm)	PROFILE	DESCRIPTION	SAMPLE No.
0			
0-1000 (1000+)		Sl. Moist, Light Brown, Medium Dense, Silty fine to medium grain SAND, Intact, Insitu (HCL-)(Phen-)	2538

Surface Visual

Profile



Spoils





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JOB No: SWL01227 **Ref. No:** - **Date:** 14 August 2018

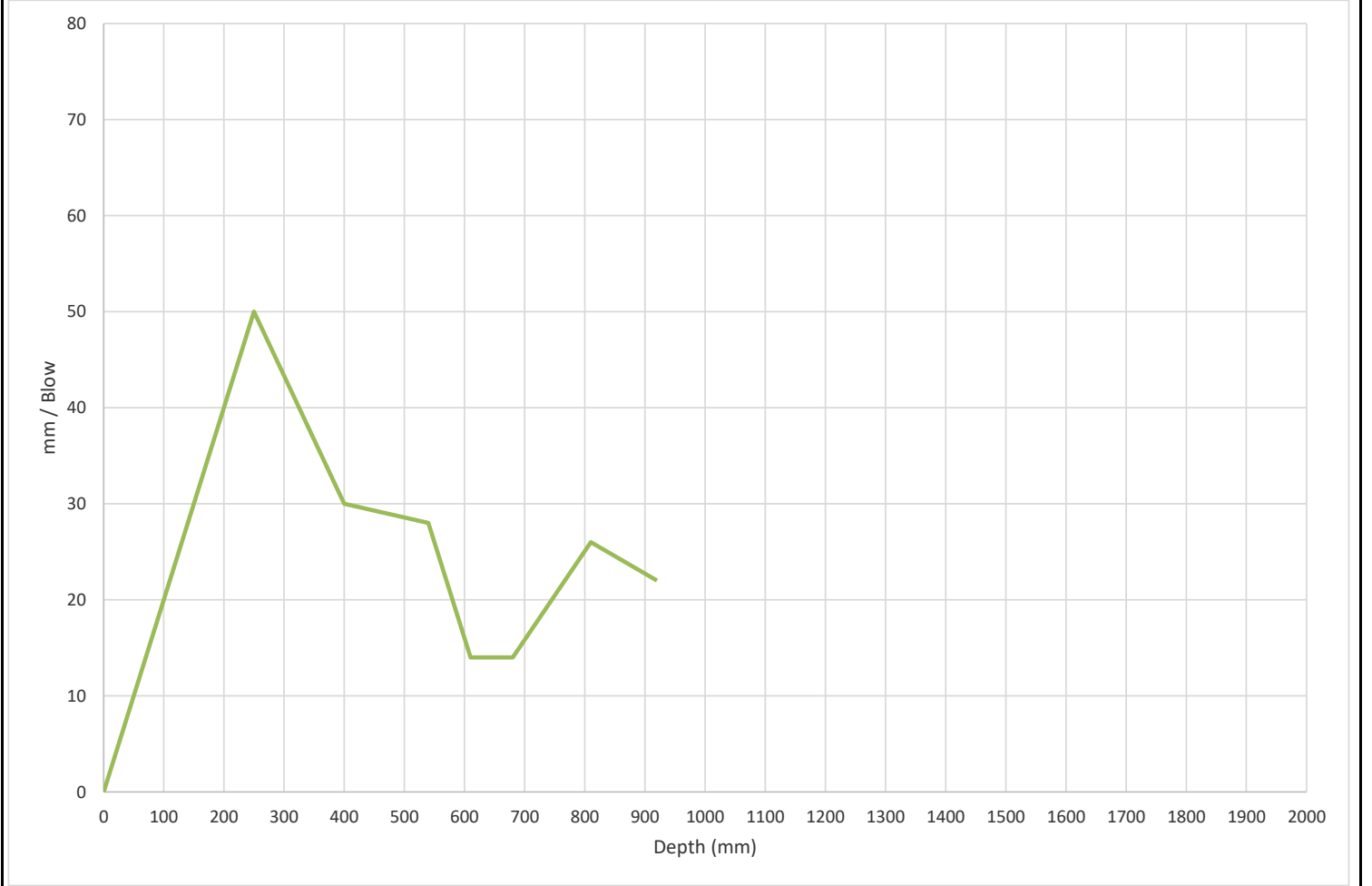
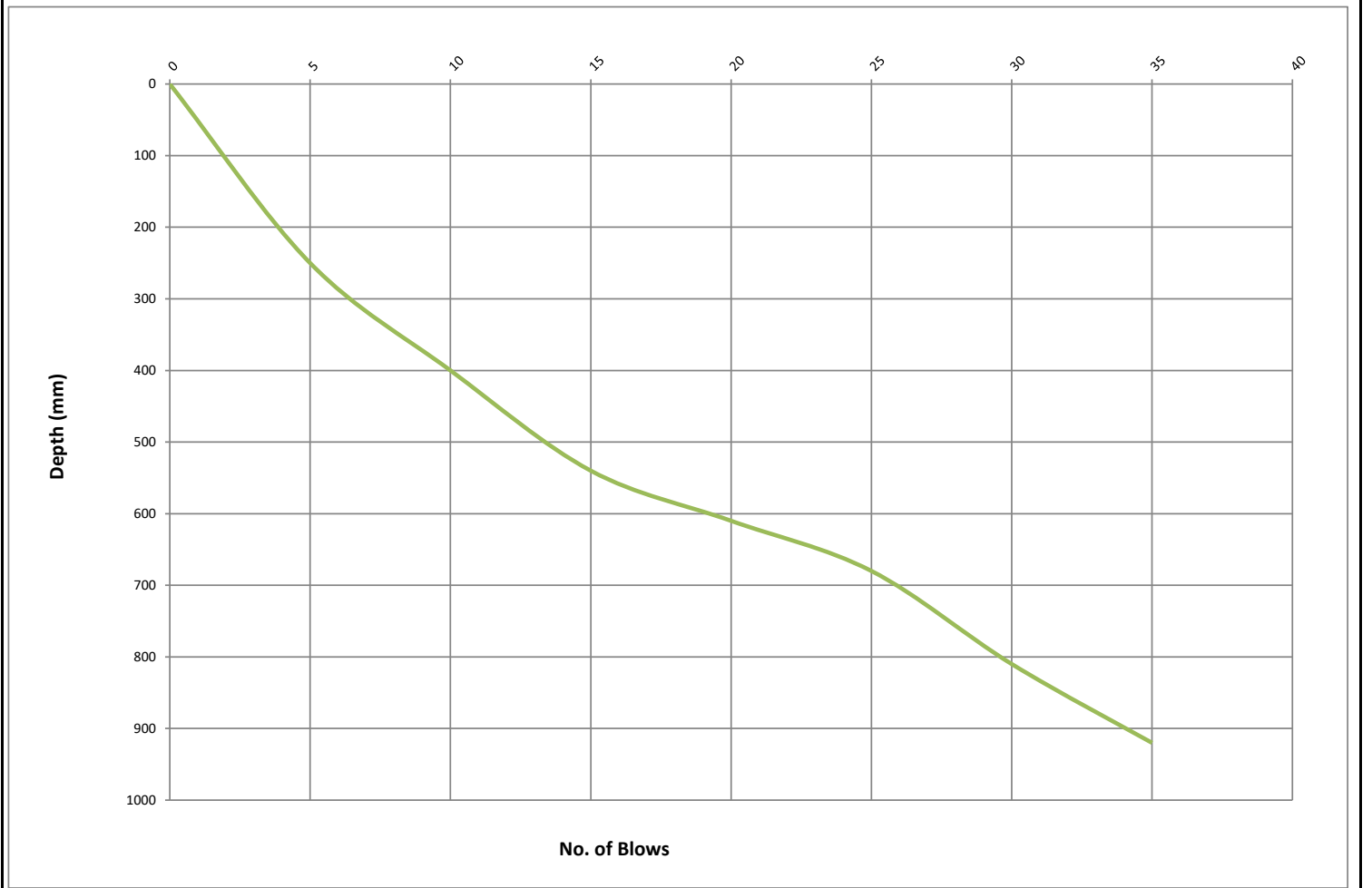
Client ITS Engineers
Carl Cronje Drive
Bellville
7530
Attention: Mr Wilhelm de Klerk

DYNAMIC CONE PENETROMETER TMH6 ST6

PROJECT:	Erica Rd	LEVEL:	1.0m Below NGL
TEST POSITION:	TP2	FOUNDATION:	-
TEST DEPTH:	1m	STARTING DEPTH:	140mm
MATERIAL TYPE:	Sandy Materials	Max. penetration depth:	920mm
CONSTRUCTION TYPE:	Road Construction	REFUSAL:	None
INSTRUMENT (DCP) SET No:	BT2-0003	NOB/TEST:	5

Number of Blows	Depth (mm)	Corrective Depth (mm)	Penetration Tempo	Structure Nr. (dn) mm/blow
0	140	0		
5	390	250	250	50
10	540	400	150	30
15	680	540	140	28
20	750	610	70	14
25	820	680	70	14
30	950	810	130	26
35	1060	920	110	22

GRAPHICAL REPRESENTATION / DYNAMIC CONE PENETROMETER TMH6 ST6



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CIVIL ENGINEERING TESTING LABORATORIES

JOB NO: SWL01227 **Your Ref** - **Date** 14 August 2018

ITS Engineers
Carl Cronje Drive
Bellville
7530

PROJECT: Erica Rd

ATTENTION: Mr Wilhelm de Klerk

TMH5 MD1, MD2 / SANS 3001 GR1, PR5, GR10, GR12, GR30, GR40

The unambiguous description of the sample/s as received are as follows :

SAMPLE No.	2538 A	SPEC	2538 B	SPEC			
HOLE No. / SV. / CHAINAGE	TP2		TP2				
ROAD No. OR NAME	Erica Road		Erica Road				
LAYER TESTED / SAMPLED FROM	0,0 - 0,5m		0,5 - 1,0m				
DATE RECEIVED	21.07.18		21.07.18				
CLIENTS MARKING	None		None				
DESCRIPTION OF SAMPLE (COLOUR & TYPE)	Light Brown Sand		Light Brown Sand				
REDUCTION FACTOR / RF CHECK	1,0000		1,0000				
	0,08	< 1%	0,63	< 1%			
SIEVE ANALYSIS (mm) SANS 3001 GR1	100,0	100	100				
	75,0	100	100				
	63,0	100	100				
	53,0	100	100				
	37,5	100	100				
	28,0	100	100				
	20,0	100	100				
	14,0	100	100				
	5,00	100	100				
	2,00	100	100				
	0,425	86		85			
	0,075	3		2			
ATTERBERG LIMITS SANS 3001 GR10, GR12	LL%	NP	NP				
	P.I.	NP	NP				
	LS%	0.0	0.0				
	GM	1,12	1,13				
SOIL-MORTAR PERCENTAGES SANS 3001 PR5	Coarse sand	14	15				
	Fine sand	83	83				
	Coarse fine sand	33	34				
	Medium fine sand	44	42				
	Fine fine sand	7	8				
	Silt and clay	3	2				
	Coarse sand ratio	0,1	0,1				
MOD AASHTO SANS 3001 GR30	OMC%	9,4	9,6				
	MDD(KG/M ³)	1588	1596				
C.B.R. SANS 3001 GR40	COMP MC	9,1	9,4				
	% SWELL	0.0	0.0				
	100%	20	19				
	98%	15	15				
	97%	14	14				
	95%	11	12				
	93%	9	9				
	90%	6	7				
Electrical Conductivity TMH1 A21T*							
pH Value TMH1 A20*							
REMARKS / NOTES							

NOTE: All tests marked with (*) means that those test methods are not accredited.

Erika Drive Test Pit 3 – Location: Open Field

Client: **ITS Engineers**
Project: Erica Rd
Attention: Mr Wilhelm de Klerk
Your Ref. No: -
Date Reported: Tuesday, 14 August 2018

TEST REPORT REFERENCE NUMBER / JOB NUMBER :

SWL01227

Dear Sir / Madam

Herewith please find the original reports pertaining to the above mentioned project.

Stake Value:

TP3

Test Requested

2x MDD / CBR /IND
1x 1m DCP

Site Sampling and Materials Information

Sampling Method: TMH5 Method MC1
Environmental Condition: Moderate

FINAL REPORT

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JOB NO:	SWL01227	Ref.	-	DATE:	14-Aug-18
Client	ITS Engineers Carl Cronje Drive Bellville 7530	Project:	Erica Rd	Site / Road:	Erica Rd
Attention:	Mr Wilhelm de Klerk	Stake Value:	TP3	Test Hole No:	TP3
GPS / WGS84	3394098 01865175	Side Walls	Stable	Excavation Method	Pick & Shovel
Refusal		Water table	None	Refusal	None
Sampling Method	TMH5 Method MC1	Environmental Condition	Sunny and Hot with Wind		

SOIL PROFILE - GRONDPROFIEL

DEPTH (mm)	PROFILE	DESCRIPTION	SAMPLE No.
0			
0-1000 (1000+)		Sl. Moist, Light yellowish Brown, Medium Dense, Silty fine to medium grain SAND, Intact, Insitu (HCL-)(Phen-)	2539

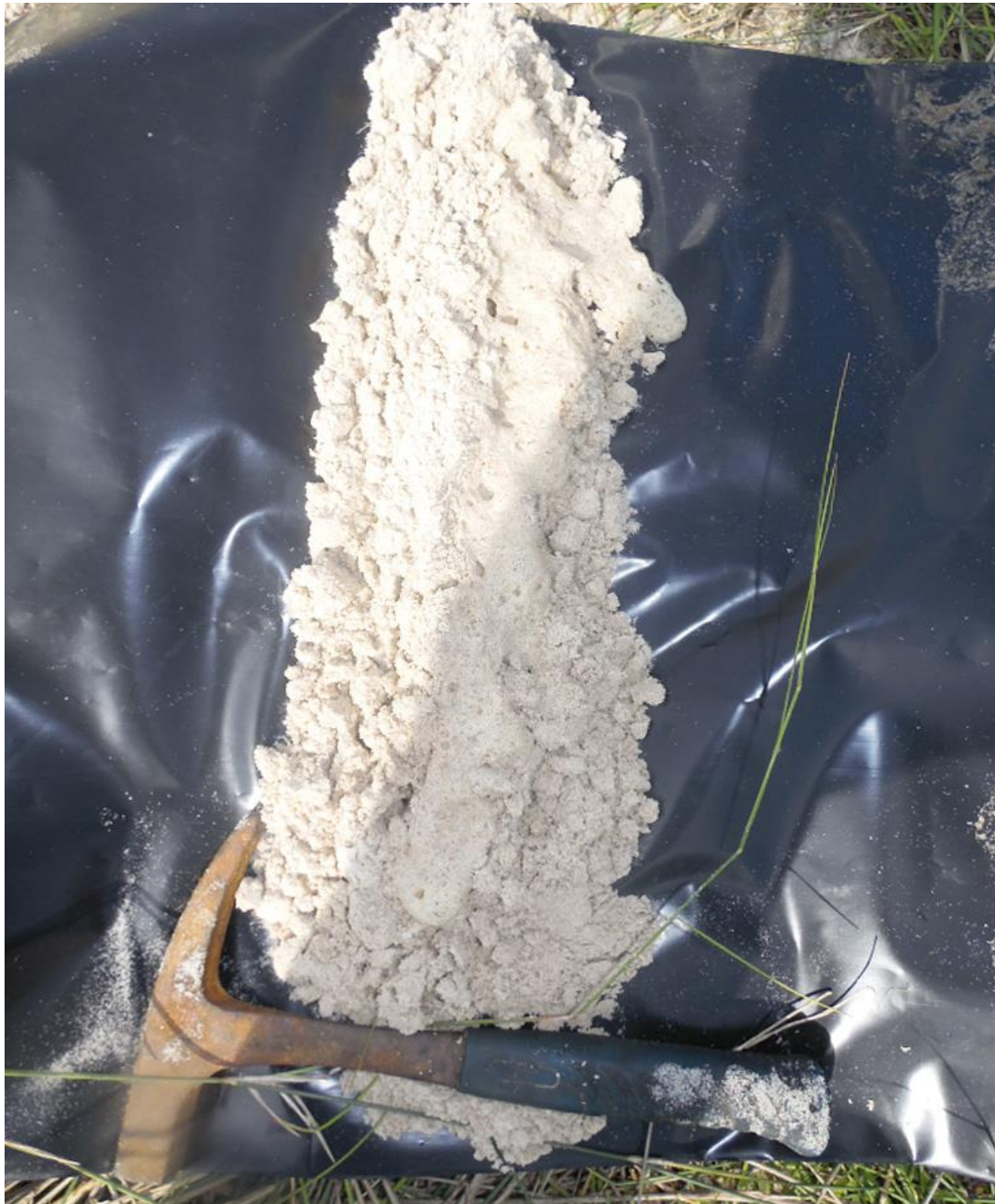
Surface Visual



Profile



Spoils





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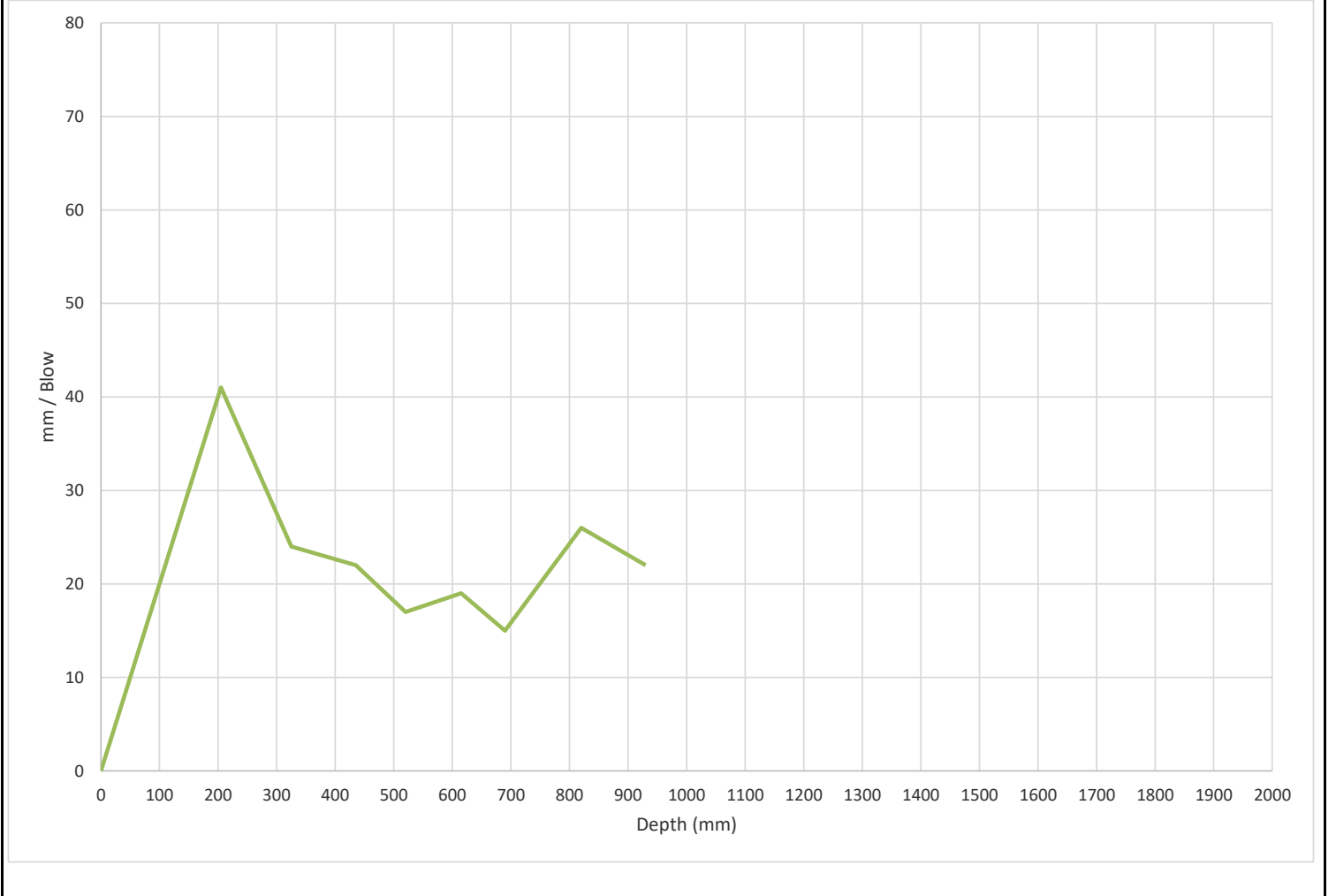
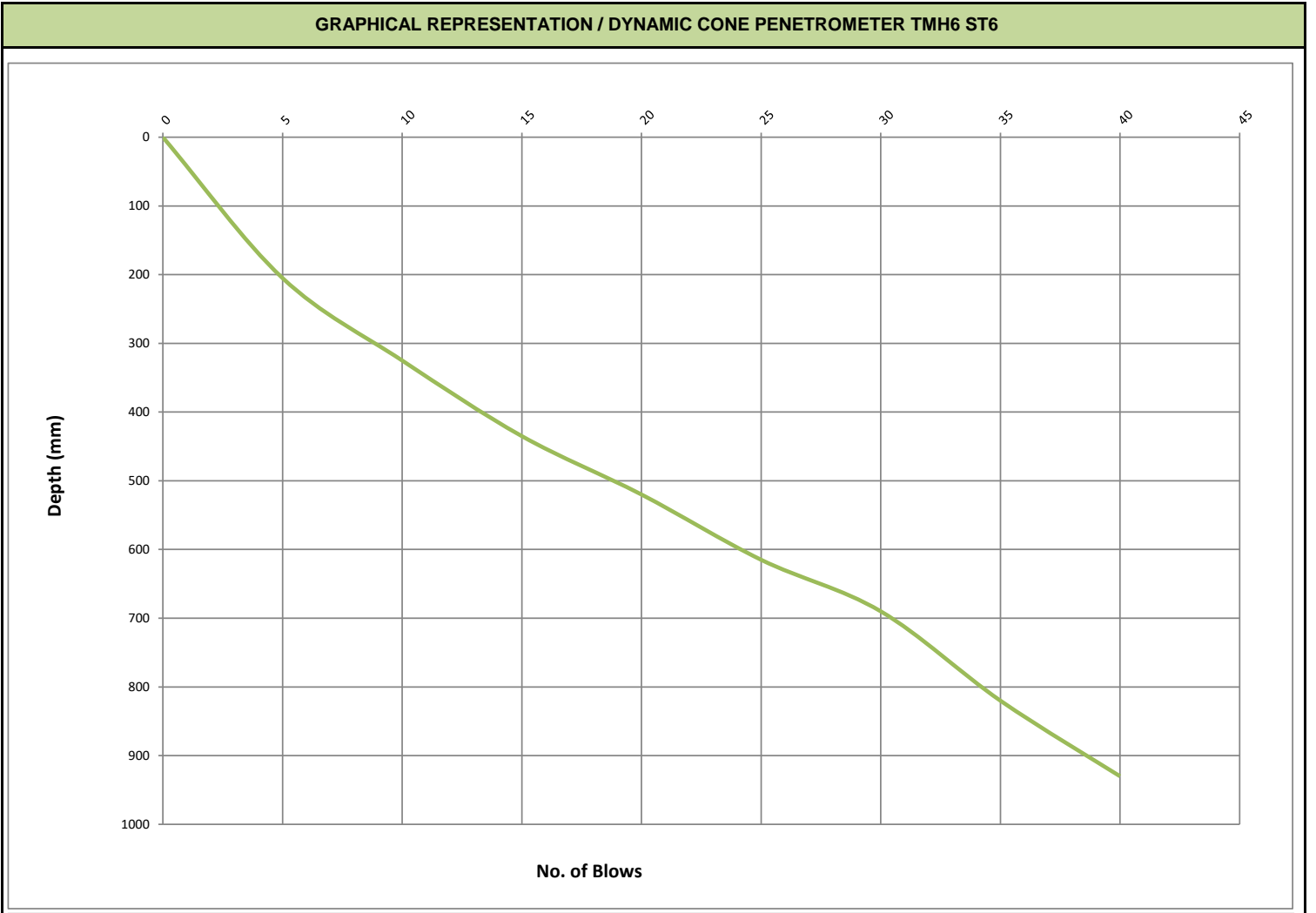
JOB No: SWL01227 **Ref. No:** - **Date:** 14 August 2018

Client ITS Engineers
Carl Cronje Drive
Bellville
7530
Attention: Mr Wilhelm de Klerk

DYNAMIC CONE PENETROMETER TMH6 ST6

PROJECT:	Erica Rd	LEVEL:	1.0m Below NGL
TEST POSITION:	TP3	FOUNDATION:	-
TEST DEPTH:	1m	STARTING DEPTH:	155mm
MATERIAL TYPE:	Sandy Materials	Max. penetration depth:	930mm
CONSTRUCTION TYPE:	Road Construction	REFUSAL:	None
INSTRUMENT (DCP) SET No:	BT2-0003	NOB/TEST:	5

Number of Blows	Depth (mm)	Corrective Depth (mm)	Penetration Tempo	Structure Nr. (dn) mm/blow
0	155	0		
5	360	205	205	41
10	480	325	120	24
15	590	435	110	22
20	675	520	85	17
25	770	615	95	19
30	845	690	75	15
35	975	820	130	26
40	1085	930	110	22



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JOB NO: SWL01227 **Your Ref** - **Date** 14 August 2018

ITS Engineers
Carl Cronje Drive
Bellville
7530

PROJECT: Erica Rd

ATTENTION: Mr Wilhelm de Klerk

TMH5 MD1, MD2 / SANS 3001 GR1, PR5, GR10, GR12, GR30, GR40

The unambiguous description of the sample/s as received are as follows :

SAMPLE No.	2539 A	SPEC	2539 B	SPEC		
HOLE No. / SV. / CHAINAGE	TP3		TP3			
ROAD No. OR NAME	Erica Road		Erica Road			
LAYER TESTED / SAMPLED FROM	0,0 - 0,5m		0,5 - 1,0m			
DATE RECEIVED	21.07.18		21.07.18			
CLIENTS MARKING	None	G9	None	G9		
DESCRIPTION OF SAMPLE (COLOUR & TYPE)	Light Yellowish Brown Sand		Light Yellowish Brown Sand			
REDUCTION FACTOR / RF CHECK	1,0000		1,0000			
	0,09	< 1%	0,69	< 1%		
SIEVE ANALYSIS (mm) SANS 3001 GR1	100,0	100	100			
	75,0	100	100			
	63,0	100	100			
	53,0	100	100			
	37,5	100	100	-	-	
	28,0	100	100	-	-	
	20,0	100	100	-	-	
	14,0	100	100	-	-	
	5,00	100	100	-	-	
	2,00	100	100	-	-	
	0,425	92	-	88	-	
	0,075	3	-	4	-	
ATTERBERG LIMITS SANS 3001 GR10, GR12	LL%	NP	≤ 7	NP	≤ 7	
	P.I.	NP	≤ 12	NP	≤ 12	
	LS%	0.0	-	0.0	-	
	GM	1,05	2.7≥ GM ≥ 0.75	1,08	2.7≥ GM ≥ 0.75	
SOIL-MORTAR PERCENTAGES SANS 3001 PR5	Coarse sand	8		10		
	Fine sand	90		85		
	Coarse fine sand	33		31		
	Medium fine sand	48		48		
	Fine fine sand	8		6		
	Silt and clay	3		4		
	Coarse sand ratio	0,1		0,1		
MOD AASHTO SANS 3001 GR30	OMC%	10,2		10,0		
	MDD(KG/M ³)	1620		1637		
C.B.R. SANS 3001 GR40	COMP MC	9,9		10,1		
	% SWELL	0.0	1,50	0.0	1,50	
	100%	8	-	12	-	
	98%	8	-	10	-	
	97%	7	-	10	-	
	95%	7	-	9	-	
	93%	7	7	8	7	
90%	6	-	7	-		
Electrical Conductivity TMH1 A21T*						
pH Value TMH1 A20*						
REMARKS / NOTES						

NOTE: All tests marked with (*) means that those test methods are not accredited.

Erika Drive Test Pit 4 – Location: Open Field

Client: **ITS Engineers**
Project: Erica Rd
Attention: Mr Wilhelm de Klerk
Your Ref. No: -
Date Reported: Tuesday, 14 August 2018

TEST REPORT REFERENCE NUMBER / JOB NUMBER :

SWL01227

Dear Sir / Madam

Herewith please find the original reports pertaining to the above mentioned project.

Stake Value:

TP4

Test Requested

2x MDD / CBR /IND
1x 1m DCP

Site Sampling and Materials Information

Sampling Method: TMH5 Method MC1
Environmental Condition: Moderate

FINAL REPORT

We would like to take this opportunity to thank you for your valued support. Should you have any further enquiries please don't hesitate to contact me.

Yours Faithfully
STEYN-WILSON LABORATORIES (PTY) LTD

Remarks:

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- Measuring equipment is traceable to national standards (Where applicable).
- Should there be any deviation from the prescribed test method comments will be made thereof, pertaining to the test on the relevant materials report.



Mr. R Wilson
Technical Signatory

DIRECTORS: Mr. J. Steyn ND-Civil (Managing) | Mr. R. Wilson B-Tech Civil (Operations)
FINANCIAL MANAGER: Mr. D. Erasmus (SAICA Reg No: 200522562)
LABORATORY MANAGER: Mr. K. Booysen





STEYN-WILSON LABORATORIES

CIVIL ENGINEERING TESTING LABORATORIES

11 Gooderson Road Blackheath

PO Box 58 Blackheath 7581

Tel: 021 905 0435

Fax: 086 499 9482

Email: admin@steynwilson.co.za

Web: www.steynwilson.co.za

JOB NO:	SWL01227	Ref.	-	DATE:	14-Aug-18
Client	ITS Engineers Carl Cronje Drive Bellville 7530	Project:	Erica Rd	Site / Road:	Erica Rd
Attention:	Mr Wilhelm de Klerk	Stake Value:	TP4	Test Hole No:	TP4
GPS / WGS84	3394088 01865387	Side Walls	Stable	Excavation Method	Pick & Shovel
Refusal		Water table	None	Refusal	None
Sampling Method	TMH5 Method MC1	Environmental Condition	Sunny and Hot with Wind	Water table	None

SOIL PROFILE - GRONDPROFIEL

DEPTH (mm)	PROFILE	DESCRIPTION	SAMPLE No.
0			
0-1000 (1000+)		Sl. Moist, Light Brown, Medium Dense, Silty fine to medium grain SAND, Intact, Insitu (HCL+)(Phen-)	2540

Surface Visual

Profile



Spoils





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Web: www.steynwilson.co.za

JOB No: SWL01227 **Ref. No:** - **Date:** 14 August 2018

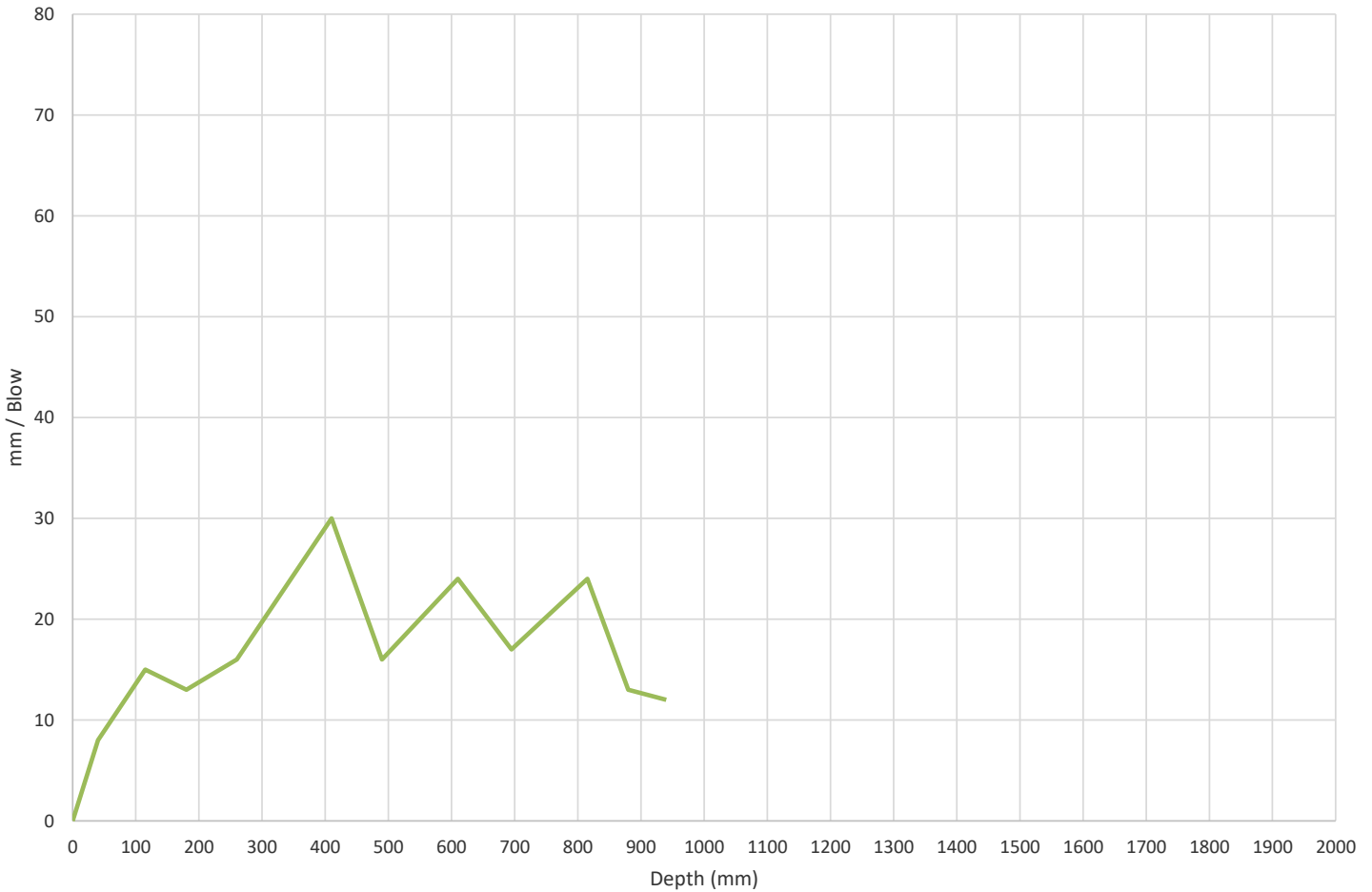
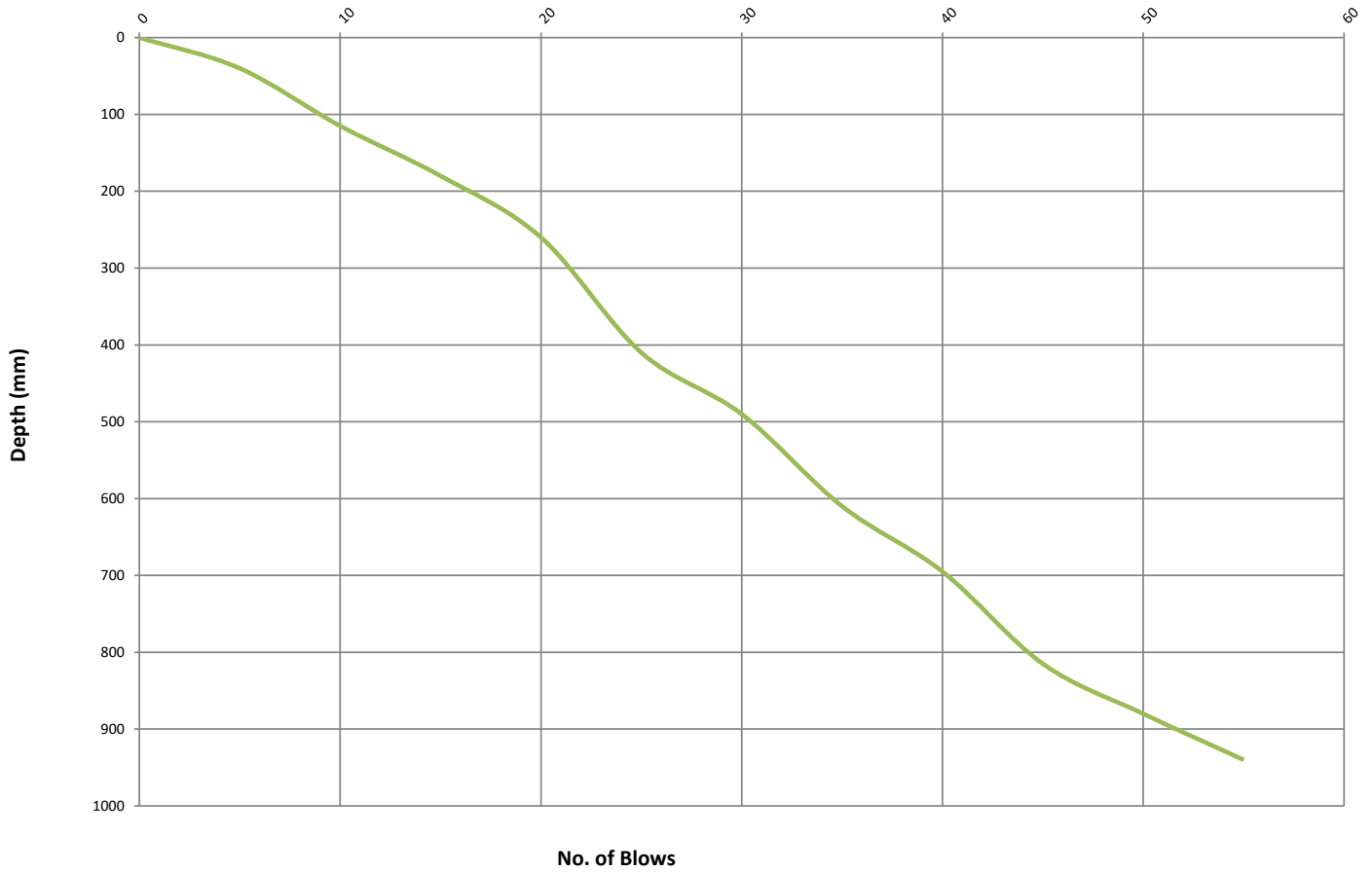
Client ITS Engineers
Carl Cronje Drive
Bellville
7530
Attention: Mr Wilhelm de Klerk

DYNAMIC CONE PENETROMETER TMH6 ST6

PROJECT:	Erica Rd	LEVEL:	1.0m Below NGL
TEST POSITION:	TP4	FOUNDATION:	-
TEST DEPTH:	1m	STARTING DEPTH:	80mm
MATERIAL TYPE:	Sandy Materials	Max. penetration depth:	940mm
CONSTRUCTION TYPE:	Road Construction	REFUSAL:	None
INSTRUMENT (DCP) SET No:	BT2-0003	NOB/TEST:	5

Number of Blows	Depth (mm)	Corrective Depth (mm)	Penetration Tempo	Structure Nr. (dn) mm/blow
0	80	0		
5	120	40	40	8
10	195	115	75	15
15	260	180	65	13
20	340	260	80	16
25	490	410	150	30
30	570	490	80	16
35	690	610	120	24
40	775	695	85	17
45	895	815	120	24
50	960	880	65	13
55	1020	940	60	12

GRAPHICAL REPRESENTATION / DYNAMIC CONE PENETROMETER TMH6 ST6



NOTE: All tests marked with (*) means that those test methods are not accredited.



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CIVIL ENGINEERING TESTING LABORATORIES

JOB NO: SWL01227 **Your Ref** - **Date** 14 August 2018

ITS Engineers
Carl Cronje Drive
Bellville
7530

PROJECT: Erica Rd

ATTENTION: Mr Wilhelm de Klerk

TMH5 MD1, MD2 / SANS 3001 GR1, PR5, GR10, GR12, GR30, GR40

The unambiguous description of the sample/s as received are as follows :

SAMPLE No.	2540 A	SPEC	2540 B	SPEC		
HOLE No. / SV. / CHAINAGE	TP4	G8	TP4	G9		
ROAD No. OR NAME	Erica Road		Erica Road			
LAYER TESTED / SAMPLED FROM	0,0 - 0,5m		0,5 - 1,0m			
DATE RECEIVED	21.07.18		21.07.18			
CLIENTS MARKING	None		None			
DESCRIPTION OF SAMPLE (COLOUR & TYPE)	Light Brown Sand		Light Brown Sand			
REDUCTION FACTOR / RF CHECK	1,0000 0,09	< 1%	1,0000 0,58	< 1%		
SIEVE ANALYSIS (mm) SANS 3001 GR1	100,0	100	100			
	75,0	100	100			
	63,0	100	100			
	53,0	100	100			
	37,5	100	100	-	-	
	28,0	100	100	-	-	
	20,0	100	100	-	-	
	14,0	100	100	-	-	
	5,00	100	100	-	-	
	2,00	100	100	-	-	
	0,425	98	95	-	-	
	0,075	5	7	-	-	
ATTERBERG LIMITS SANS 3001 GR10, GR12	LL%	NP	≤ 7	NP	≤ 7	
	P.I.	NP	≤ 12	NP	≤ 12	
	LS%	0.0	-	0.0	-	
	GM	0,97	2.7≥ GM ≥ 0.75	0,99	2.7≥ GM ≥ 0.75	
SOIL-MORTAR PERCENTAGES SANS 3001 PR5	Coarse sand	2		5		
	Fine sand	93		88		
	Coarse fine sand	23		28		
	Medium fine sand	59		51		
	Fine fine sand	12		9		
	Silt and clay	5		7		
	Coarse sand ratio	0,0		0,1		
MOD AASHTO SANS 3001 GR30	OMC%	11,2		10,9		
	MDD(KG/M ³)	1556		1578		
C.B.R. SANS 3001 GR40	COMP MC	10,9		10,7		
	% SWELL	0.0	1,50	0.0	1,50	
	100%	19	-	14	-	
	98%	17	-	13	-	
	97%	15	-	12	-	
	95%	13	-	10	-	
	93%	11	10	9	7	
90%	9	-	8	-		
Electrical Conductivity TMH1 A21T*						
pH Value TMH1 A20*						
REMARKS / NOTES						

NOTE: All tests marked with (*) means that those test methods are not accredited.

Erika Drive Test Pit 5 – Location: Open Field

Client: **ITS Engineers**
Project: Erica Rd
Attention: Mr Wilhelm de Klerk
Your Ref. No: -
Date Reported: Tuesday, 14 August 2018

TEST REPORT REFERENCE NUMBER / JOB NUMBER :

SWL01227

Dear Sir / Madam

Herewith please find the original reports pertaining to the above mentioned project.

Stake Value:

TP5

Test Requested

2x MDD / CBR /IND
1x 1m DCP

Site Sampling and Materials Information

Sampling Method: TMH5 Method MC1
Environmental Condition: Moderate

FINAL REPORT

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Yours Faithfully
STEYN-WILSON LABORATORIES (PTY) LTD

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Mr. R Wilson
Technical Signatory

DIRECTORS: Mr. J. Steyn ND-Civil (Managing) | Mr. R. Wilson B-Tech Civil (Operations)
FINANCIAL MANAGER: Mr. D. Erasmus (SAICA Reg No: 200522562)
LABORATORY MANAGER: Mr. K. Booysen





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Web: www.steynwilson.co.za

JOB NO:	SWL01227	Ref.	-	DATE:	14-Aug-18
Client	ITS Engineers Carl Cronje Drive Bellville 7530	Project:	Erica Rd	Site / Road:	Erica Rd
Attention:	Mr Wilhelm de Klerk	Stake Value:	TP5	Test Hole No:	TP5
GPS / WGS84	3394036 01865603	Side Walls	Stable	Excavation Method	Pick & Shovel
Refusal		Water table	None	Refusal	None
Sampling Method	TMH5 Method MC1	Enviromental Condition	Sunny and Hot with Wind	Water table	None

SOIL PROFILE - GRONDPROFIEL

DEPTH (mm)	PROFILE	DESCRIPTION	SAMPLE No.
0			
0-1000 (1000+)		Sl. Moist, Light greyish Brown, Medium Dense, Silty fine to medium grain SAND, Intact, Insitu (HCL+)(Phen-)	2541

Surface Visual



Profile



Spoils





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Web: www.steynwilson.co.za

JOB No: SWL01227 **Ref. No:** - **Date:** 14 August 2018

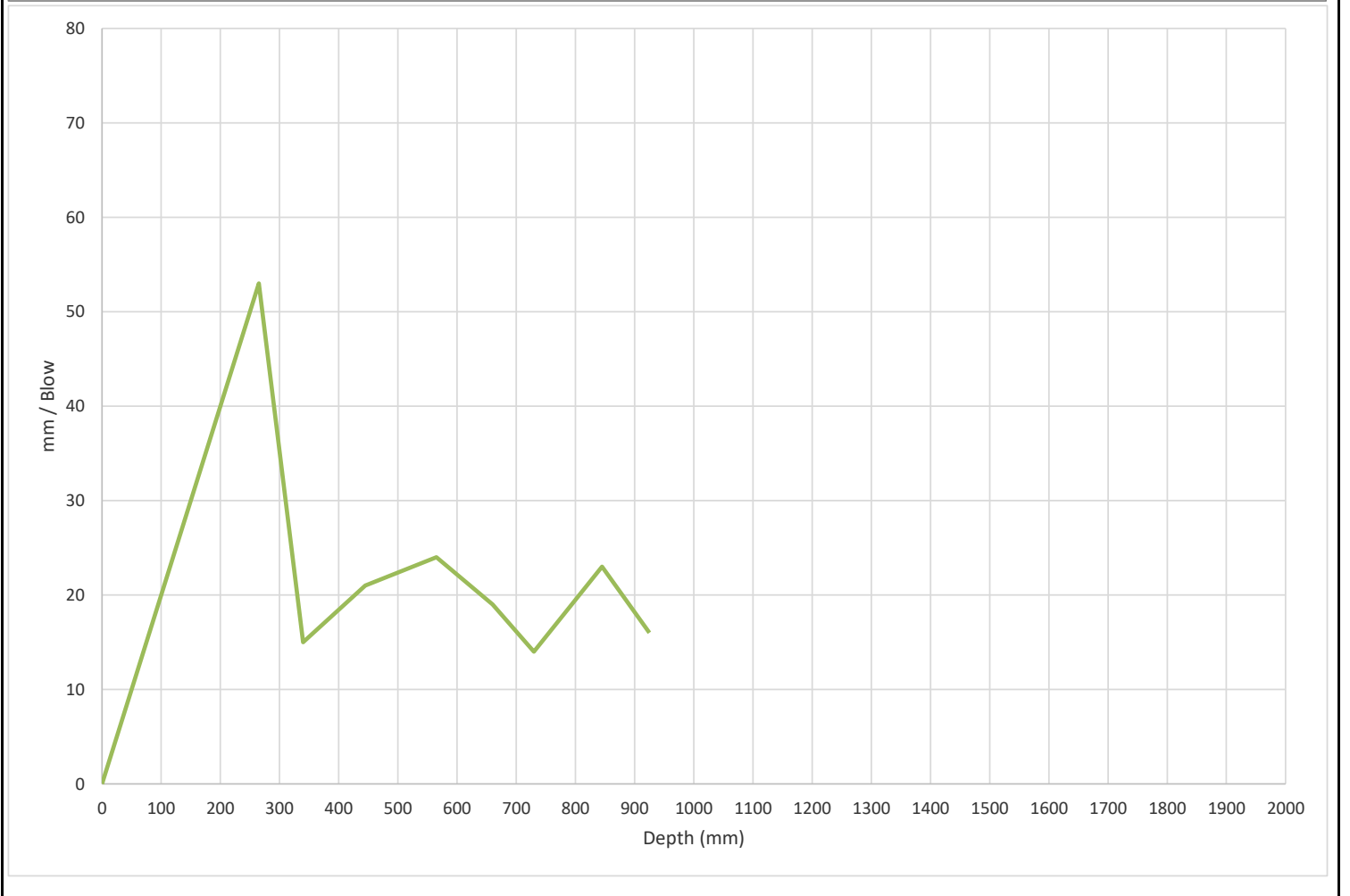
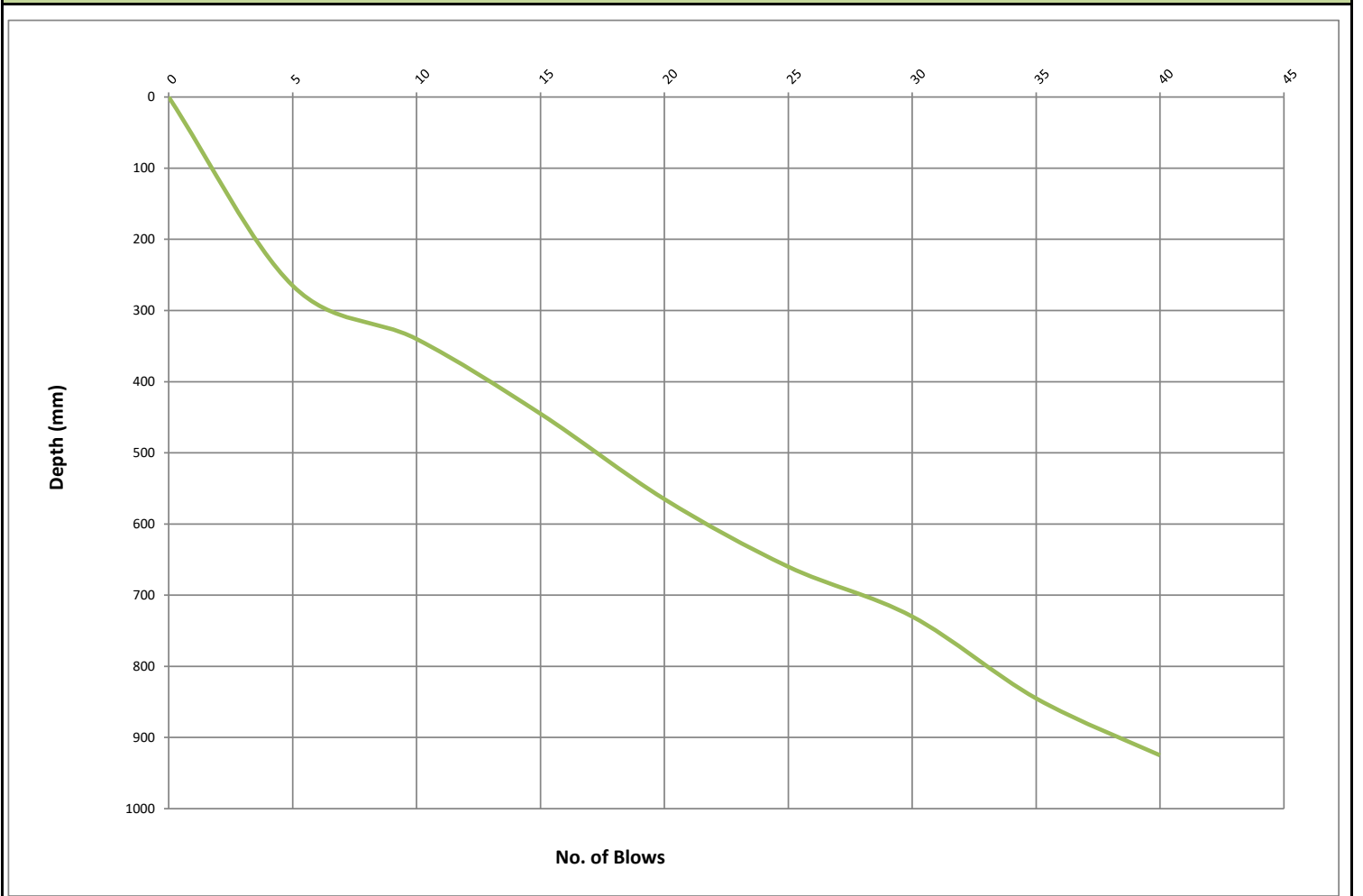
Client ITS Engineers
Carl Cronje Drive
Bellville
7530
Attention: Mr Wilhelm de Klerk

DYNAMIC CONE PENETROMETER TMH6 ST6

PROJECT:	Erica Rd	LEVEL:	1.0m Below NGL
TEST POSITION:	TP5	FOUNDATION:	-
TEST DEPTH:	1m	STARTING DEPTH:	125mm
MATERIAL TYPE:	Sandy Materials	Max. penetration depth:	925mm
CONSTRUCTION TYPE:	Road Construction	REFUSAL:	None
INSTRUMENT (DCP) SET No:	BT2-0003	NOB/TEST:	5

Number of Blows	Depth (mm)	Corrective Depth (mm)	Penetration Tempo	Structure Nr. (dn) mm/blow
0	125	0		
5	390	265	265	53
10	465	340	75	15
15	570	445	105	21
20	690	565	120	24
25	785	660	95	19
30	855	730	70	14
35	970	845	115	23
40	1050	925	80	16

GRAPHICAL REPRESENTATION / DYNAMIC CONE PENETROMETER TMH6 ST6



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CIVIL ENGINEERING TESTING LABORATORIES

JOB NO: SWL01227 **Your Ref** - **Date** 14 August 2018

ITS Engineers
Carl Cronje Drive
Bellville
7530

PROJECT: Erica Rd

ATTENTION: Mr Wilhelm de Klerk

TMH5 MD1, MD2 / SANS 3001 GR1, PR5, GR10, GR12, GR30, GR40

The unambiguous description of the sample/s as received are as follows :

SAMPLE No.	2541 A	SPEC	2541 B	SPEC		
HOLE No. / SV. / CHAINAGE	TP5		TP5			
ROAD No. OR NAME	Erica Road		Erica Road			
LAYER TESTED / SAMPLED FROM	0,0 - 0,5m		0,5 - 1,0m			
DATE RECEIVED	23.07.18		23.07.18			
CLIENTS MARKING	None	G8	None	G9		
DESCRIPTION OF SAMPLE (COLOUR & TYPE)	Light Greyish Brown Sand		Light Greyish Brown Sand			
REDUCTION FACTOR / RF CHECK	1,0000		1,0000			
	0,13	< 1%	0,34	< 1%		
SIEVE ANALYSIS (mm) SANS 3001 GR1	100,0	100	100			
	75,0	100	100			
	63,0	100	100			
	53,0	100	100			
	37,5	100	100	-	-	
	28,0	100	100	-	-	
	20,0	100	100	-	-	
	14,0	100	100	-	-	
	5,00	100	100	-	-	
	2,00	100	100	-	-	
	0,425	96	100	-	-	
	0,075	3	100	-	-	
ATTERBERG LIMITS SANS 3001 GR10, GR12	LL%	NP	NP	≤ 7		
	P.I.	NP	NP	≤ 12		
	LS%	0.0	0.0	-	-	
	GM	1,01	1,04	2.7≥ GM ≥ 0.75	2.7≥ GM ≥ 0.75	
SOIL-MORTAR PERCENTAGES SANS 3001 PR5	Coarse sand	3	4			
	Fine sand	94	94			
	Coarse fine sand	20	26			
	Medium fine sand	60	58			
	Fine fine sand	14	11			
	Silt and clay	3	2			
	Coarse sand ratio	0,0	0,0			
MOD AASHTO SANS 3001 GR30	OMC%	10,2	10,5			
	MDD(KG/M ³)	1729	1701			
C.B.R. SANS 3001 GR40	COMP MC	9,8	10,4			
	% SWELL	0.0	0.0	1,50	1,50	
	100%	25	16	-	-	
	98%	20	14	-	-	
	97%	17	13	-	-	
	95%	13	11	-	-	
	93%	10	9	10	7	
90%	7	8	-	-		
Electrical Conductivity TMH1 A21T*						
pH Value TMH1 A20*						
REMARKS / NOTES						

NOTE: All tests marked with (*) means that those test methods are not accredited.

Erika Drive Test Pit 6 – Location: Open Field

Client: **ITS Engineers**
Project: Erica Rd
Attention: Mr Wilhelm de Klerk
Your Ref. No: -
Date Reported: Tuesday, 14 August 2018

TEST REPORT REFERENCE NUMBER / JOB NUMBER :

SWL01227

Dear Sir / Madam

Herewith please find the original reports pertaining to the above mentioned project.

Stake Value:

TP6

Test Requested

2x MDD / CBR / IND
1x 1m DCP

Site Sampling and Materials Information

Sampling Method: TMH5 Method MC1
Environmental Condition: Moderate

● FINAL REPORT

We would like to take this opportunity to thank you for your valued support.
Should you have any further enquiries please don't hesitate to contact me.

Yours Faithfully

STEYN-WILSON LABORATORIES (PTY) LTD

Remarks:

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7. Should there be any deviation from the prescribed test method comments will be made thereof, pertaining to the test on the relevant materials report.



Mr. R Wilson
Technical Signatory

DIRECTORS: Mr. J. Steyn ND-Civil (Managing) | Mr. R. Wilson B-Tech Civil (Operations)
FINANCIAL MANAGER: Mr. D. Erasmus (SAICA Reg No: 200522562)
LABORATORY MANAGER: Mr. K. Booysen



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Web: www.steynwilson.co.za

JOB NO:	SWL01227	Ref.	-	DATE:	14-Aug-18
Client	ITS Engineers Carl Cronje Drive Bellville 7530	Project:	Erica Rd	Site / Road:	Erica Rd
Attention:	Mr Wilhelm de Klerk	Stake Value:	TP6	Test Hole No:	TP6
GPS / WGS84	3394041 01865817	Side Walls	Stable	Excavation Method	Pick & Shovel
Refusal		Water table	None	Refusal	None
Sampling Method	TMH5 Method MC1	Enviromental Condition	Sunny and Hot with Wind	Water table	None

SOIL PROFILE - GRONDPROFIEL

DEPTH (mm)	PROFILE	DESCRIPTION	SAMPLE No.
0			
0-1000 (1000+)		Sl. Moist, Light yellowish Brown, Medium Dense, Silty fine to medium grain SAND, Intact, Insitu (HCL+)(Phen-) Water Table : 1,0m	2542

Surface Visual



Profile



Spoils





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JOB No: SWL01227 **Ref. No:** - **Date:** 14 August 2018

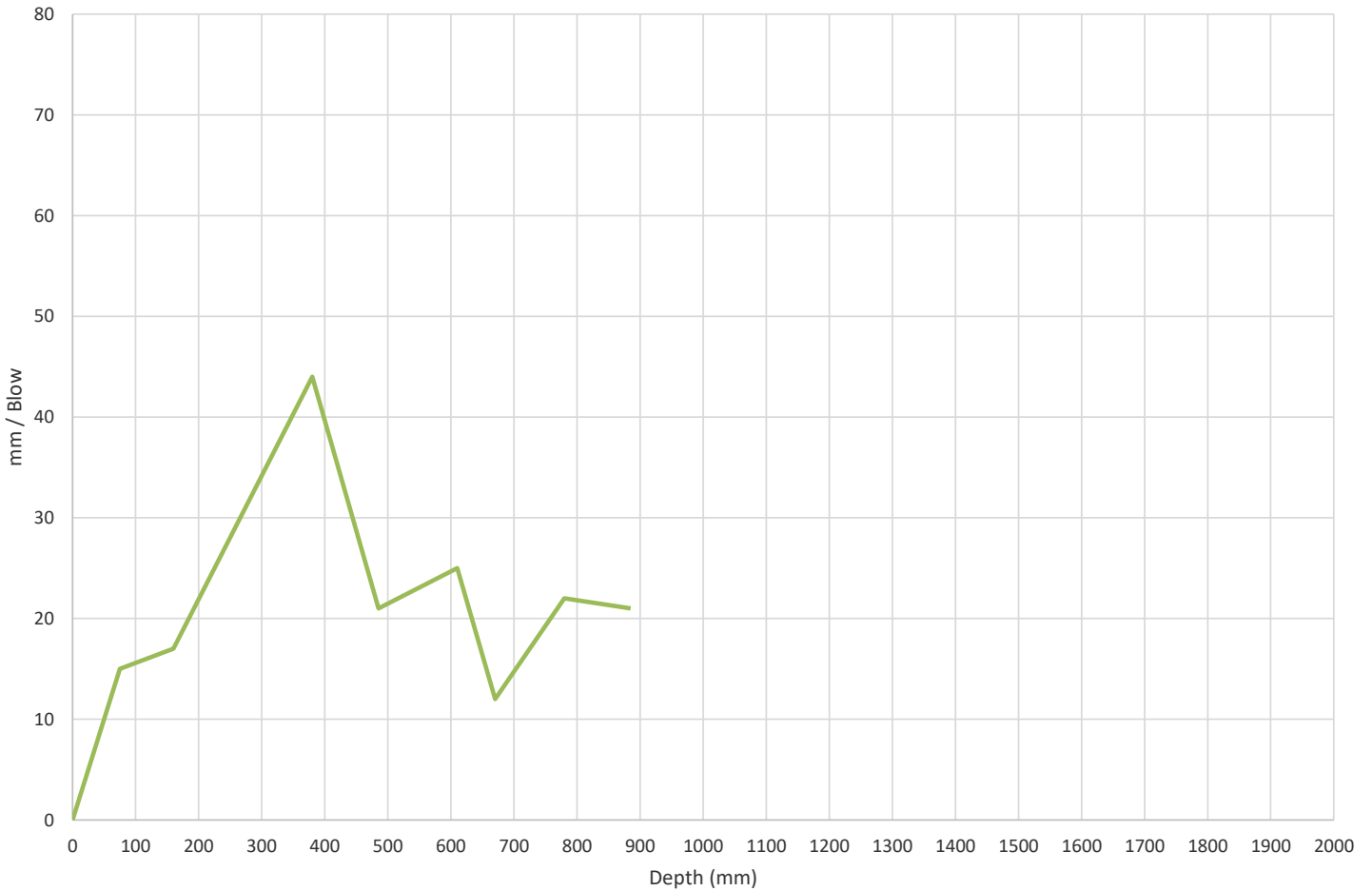
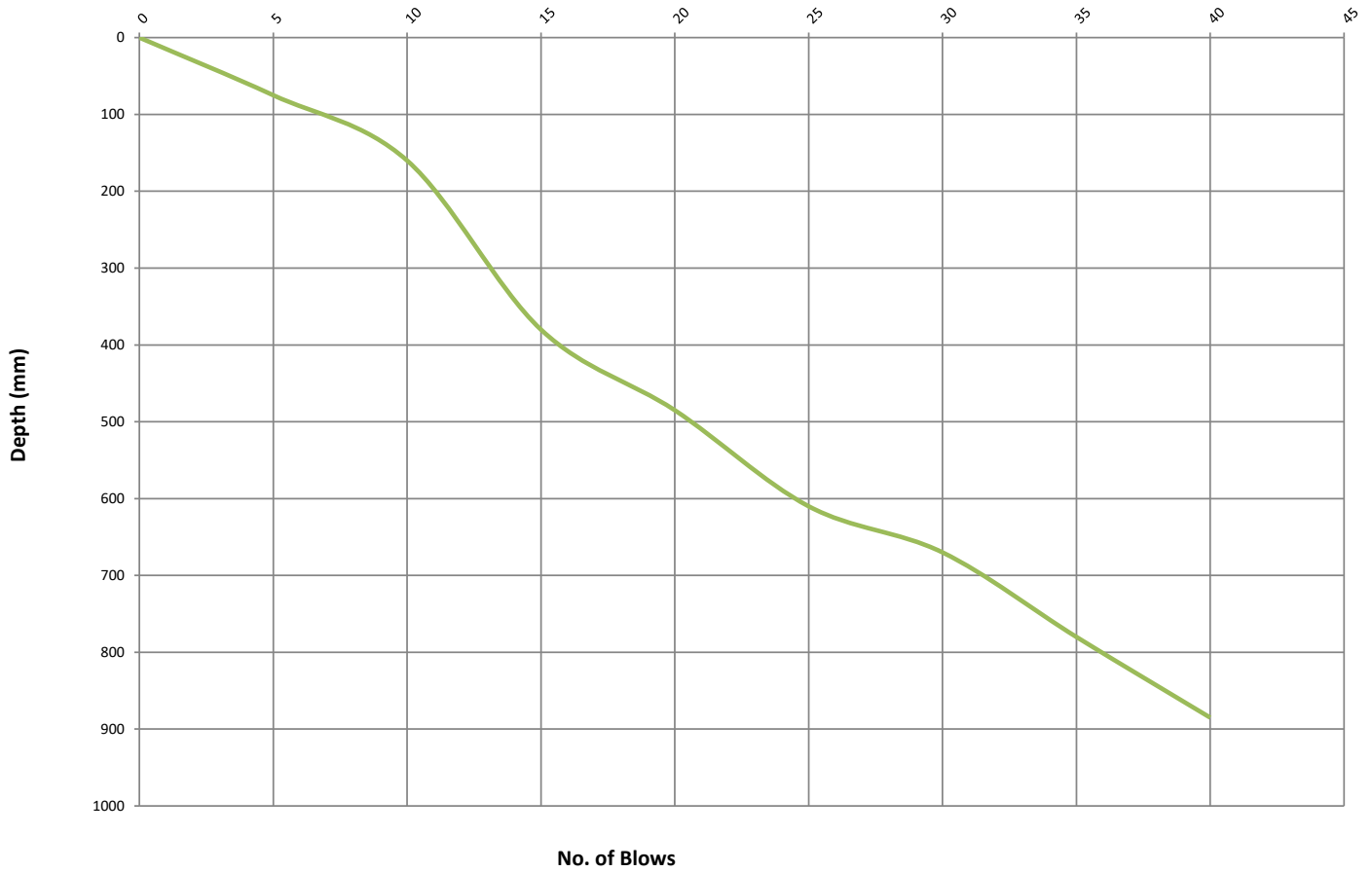
Client ITS Engineers
Carl Cronje Drive
Bellville
7530
Attention: Mr Wilhelm de Klerk

DYNAMIC CONE PENETROMETER TMH6 ST6

PROJECT:	Erica Rd	LEVEL:	1.0m Below NGL
TEST POSITION:	TP6	FOUNDATION:	-
TEST DEPTH:	1m	STARTING DEPTH:	185mm
MATERIAL TYPE:	Sandy Materials	Max. penetration depth:	885mm
CONSTRUCTION TYPE:	Road Construction	REFUSAL:	None
INSTRUMENT (DCP) SET No:	BT2-0003	NOB/TEST:	5

Number of Blows	Depth (mm)	Corrective Depth (mm)	Penetration Tempo	Structure Nr. (dn) mm/blow
0	185	0		
5	260	75	75	15
10	345	160	85	17
15	565	380	220	44
20	670	485	105	21
25	795	610	125	25
30	855	670	60	12
35	965	780	110	22
40	1070	885	105	21

GRAPHICAL REPRESENTATION / DYNAMIC CONE PENETROMETER TMH6 ST6



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CIVIL ENGINEERING TESTING LABORATORIES

JOB NO: SWL01227 **Your Ref** - **Date** 14 August 2018

ITS Engineers
Carl Cronje Drive
Bellville
7530

PROJECT: Erica Rd

ATTENTION: Mr Wilhelm de Klerk

TMH5 MD1, MD2 / SANS 3001 GR1, PR5, GR10, GR12, GR30, GR40

The unambiguous description of the sample/s as received are as follows :

SAMPLE No.	2542 A	SPEC	2542 B	SPEC		
HOLE No. / SV. / CHAINAGE	TP6		TP6			
ROAD No. OR NAME	Erica Road		Erica Road			
LAYER TESTED / SAMPLED FROM	0,0 - 0,5m		0,5 - 1,0m			
DATE RECEIVED	23.07.18		23.07.18			
CLIENTS MARKING	None	G9	None	G8		
DESCRIPTION OF SAMPLE (COLOUR & TYPE)	Light Yellowish Brown Sand		Light Yellowish Brown Sand			
REDUCTION FACTOR / RF CHECK	1,0000		1,0000			
	0,12	< 1%	0,26	< 1%		
SIEVE ANALYSIS (mm) SANS 3001 GR1	100,0	100	100			
	75,0	100	100			
	63,0	100	100			
	53,0	100	100			
	37,5	100	100	-	-	
	28,0	100	100	-	-	
	20,0	100	100	-	-	
	14,0	100	100	-	-	
	5,00	100	100	-	-	
	2,00	100	100	99	-	
	0,425	56	56	50	-	
	0,075	1	1	1	-	
ATTERBERG LIMITS SANS 3001 GR10, GR12	LL%	NP	NP	≤ 7		
	P.I.	NP	NP	≤ 12		
	LS%	0.0	0.0	-	-	
	GM	1,44	2.7≥ GM ≥ 0.75	1,50	2.7≥ GM ≥ 0.75	
SOIL-MORTAR PERCENTAGES SANS 3001 PR5	Coarse sand	44	44	49		
	Fine sand	55	55	50		
	Coarse fine sand	30	30	25		
	Medium fine sand	20	20	19		
	Fine fine sand	6	6	5		
	Silt and clay	1	1	1		
	Coarse sand ratio	0,4	0,4	0,5		
MOD AASHTO SANS 3001 GR30	OMC%	9,4	9,4	9,5		
	MDD(KG/M ³)	1656	1656	1677		
C.B.R. SANS 3001 GR40	COMP MC	9,1	9,1	9,5		
	% SWELL	0.0	1,50	0.0	1,50	
	100%	15	-	16	-	
	98%	13	-	14	-	
	97%	12	-	13	-	
	95%	10	-	12	-	
	93%	8	7	10	10	
90%	6	-	8	-		
Electrical Conductivity TMH1 A21T*						
pH Value TMH1 A20*						
REMARKS / NOTES						

NOTE: All tests marked with (*) means that those test methods are not accredited.

Erika Drive Test Pit 7 – Location: Open Field

Client: **ITS Engineers**
Project: Erica Rd
Attention: Mr Wilhelm de Klerk
Your Ref. No: -
Date Reported: Tuesday, 14 August 2018

TEST REPORT REFERENCE NUMBER / JOB NUMBER :

SWL01227

Dear Sir / Madam

Herewith please find the original reports pertaining to the above mentioned project.

Stake Value:

TP7

Test Requested

2x MDD / CBR /IND
1x 1m DCP

Site Sampling and Materials Information

Sampling Method: TMH5 Method MC1
Environmental Condition: Moderate

FINAL REPORT

We would like to take this opportunity to thank you for your valued support. Should you have any further enquiries please don't hesitate to contact me.

Yours Faithfully
STEYN-WILSON LABORATORIES (PTY) LTD

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Mr. R Wilson
Technical Signatory



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Fax: 086 499 9482

Email: admin@steynwilson.co.za

Web: www.steynwilson.co.za

JOB NO: SWL01227 **Ref.:** - **DATE:** 14-Aug-18

Client	ITS Engineers	Project:	Erica Rd
	Carl Cronje Drive	Site / Road:	Erica Rd
	Bellville	Stake Value:	TP7
	7530	Test Hole No:	TP7
		Side Walls	Stable
Attention:	Mr Wilhelm de Klerk	Excavation Method	Pick & Shovel
GPS / WGS84	3394051 018660988	Refusal	None
		Water table	None
Sampling Method	TMH5 Method MC1	Enviromental Condition	Sunny and Hot with Wind

SOIL PROFILE - GRONDPROFIEL

DEPTH (mm)	PROFILE	DESCRIPTION	SAMPLE No.
0			
0-1000 (1000+)		Sl. Moist, Light Brown, Medium Dense, Silty fine to medium grain SAND with traces of calcrete Gravel, Intact, Insitu (HCL+)(Phen-)	2543

Surface Visual



Profile



Spoils





STEYN-WILSON
LABORATORIES

CIVIL ENGINEERING TESTING LABORATORIES



Accreditation No.: T0835

11 Gooderson Road Blackheath

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Web: www.steynwilson.co.za

JOB No: SWL01227 **Ref. No:** - **Date:** 14 August 2018

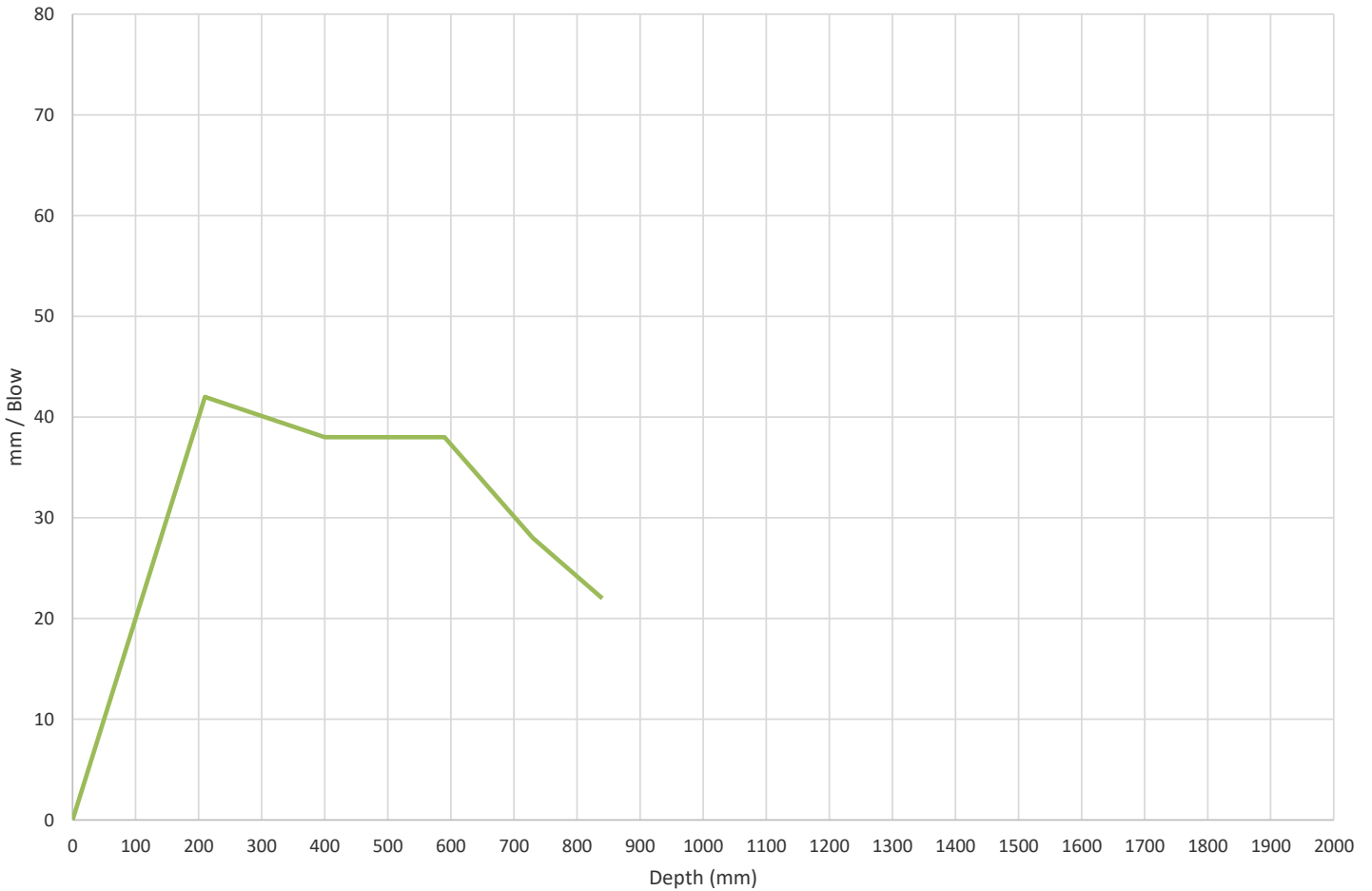
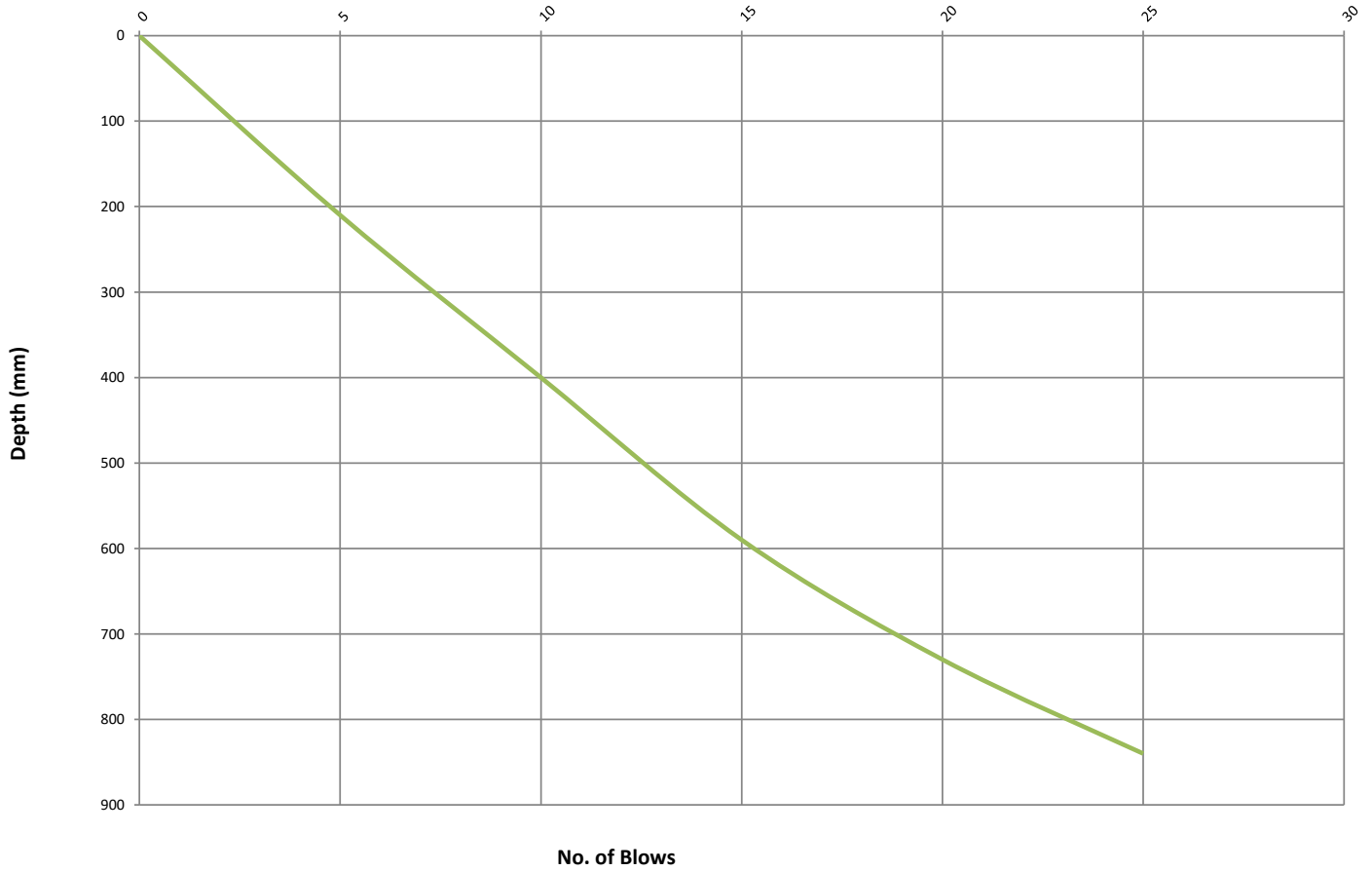
Client ITS Engineers
Carl Cronje Drive
Bellville
7530
Attention: Mr Wilhelm de Klerk

DYNAMIC CONE PENETROMETER TMH6 ST6

PROJECT:	Erica Rd	LEVEL:	Bottom of TP
TEST POSITION:	TP7	FOUNDATION:	-
TEST DEPTH:	1m	STARTING DEPTH:	240mm
MATERIAL TYPE:	Sandy Materials	Max. penetration depth:	840mm
CONSTRUCTION TYPE:	Road Construction	REFUSAL:	None
INSTRUMENT (DCP) SET No:	BT2-0003	NOB/TEST:	5

Number of Blows	Depth (mm)	Corrective Depth (mm)	Penetration Tempo	Structure Nr. (dn) mm/blow
0	240	0		
5	450	210	210	42
10	640	400	190	38
15	830	590	190	38
20	970	730	140	28
25	1080	840	110	22

GRAPHICAL REPRESENTATION / DYNAMIC CONE PENETROMETER TMH6 ST6



NOTE: All tests marked with (*) means that those test methods are not accredited.



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CIVIL ENGINEERING TESTING LABORATORIES

JOB NO: SWL01227 **Your Ref** - **Date** 14 August 2018

ITS Engineers
Carl Cronje Drive
Bellville
7530

PROJECT: Erica Rd

ATTENTION: Mr Wilhelm de Klerk

TMH5 MD1, MD2 / SANS 3001 GR1, PR5, GR10, GR12, GR30, GR40

The unambiguous description of the sample/s as received are as follows :

SAMPLE No.	2543 A	SPEC	2543 B	SPEC		
HOLE No. / SV. / CHAINAGE	TP7		TP7			
ROAD No. OR NAME	Erica Road		Erica Road			
LAYER TESTED / SAMPLED FROM	0,0 - 0,5m		0,5 - 1,0m			
DATE RECEIVED	23.07.18		23.07.18			
CLIENTS MARKING	None	G7	None	G8		
DESCRIPTION OF SAMPLE (COLOUR & TYPE)	Light Brown Sand with Pebbles		Light Brown Sand with Pebbles			
REDUCTION FACTOR / RF CHECK	0,0375		0,0382			
	0,08	< 1%	0,56	< 1%		
SIEVE ANALYSIS (mm) SANS 3001 GR1	100,0	100	100			
	75,0	100	100			
	63,0	100	100			
	53,0	100	100			
	37,5	98	-	100	-	
	28,0	98	-	96	-	
	20,0	98	-	95	-	
	14,0	97	-	94	-	
	5,00	96	-	93	-	
	2,00	95	-	91	-	
	0,425	84	-	79	-	
	0,075	3	-	4	-	
ATTERBERG LIMITS SANS 3001 GR10, GR12	LL%	NP	NP	≤ 7		
	P.I.	NP	NP	≤ 12		
	LS%	0.0	≤ 7	0.0	-	
	GM	1,18	2.7≥ GM ≥ 0.75	1,26	2.7≥ GM ≥ 0.75	
SOIL-MORTAR PERCENTAGES SANS 3001 PR5	Coarse sand	11		14		
	Fine sand	86		78		
	Coarse fine sand	23		21		
	Medium fine sand	51		44		
	Fine fine sand	12		13		
	Silt and clay	3		9		
	Coarse sand ratio	0,1		0,1		
MOD AASHTO SANS 3001 GR30	OMC%	9,2		9,5		
	MDD(KG/M ³)	1723		1753		
C.B.R. SANS 3001 GR40	COMP MC	8,9		9,6		
	% SWELL	0.0	1,50	0.0	1,50	
	100%	28	-	23	-	
	98%	24	-	19	-	
	97%	21	-	17	-	
	95%	18	-	15	-	
	93%	15	15	12	10	
90%	12	-	9	-		
Electrical Conductivity TMH1 A21T*						
pH Value TMH1 A20*						
REMARKS / NOTES						

NOTE: All tests marked with (*) means that those test methods are not accredited.

Erika Drive Test Pit 8 – Location: Open Field

Client: **ITS Engineers**
Project: Erica Rd
Attention: Mr Wilhelm de Klerk
Your Ref. No: -
Date Reported: Tuesday, 14 August 2018

TEST REPORT REFERENCE NUMBER / JOB NUMBER :

SWL01227

Dear Sir / Madam

Herewith please find the original reports pertaining to the above mentioned project.

Stake Value:

TP8

Test Requested

2x MDD / CBR /IND
1x 1m DCP

Site Sampling and Materials Information

Sampling Method: TMH5 Method MC1
Environmental Condition: Moderate

FINAL REPORT

We would like to take this opportunity to thank you for your valued support. Should you have any further enquiries please don't hesitate to contact me.

Yours Faithfully
STEYN-WILSON LABORATORIES (PTY) LTD

Remarks:

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- Measuring equipment is traceable to national standards (Where applicable).
- Should there be any deviation from the prescribed test method comments will be made thereof, pertaining to the test on the relevant materials report.



Mr. R Wilson
Technical Signatory

DIRECTORS: Mr. J. Steyn ND-Civil (Managing) | Mr. R. Wilson B-Tech Civil (Operations)
FINANCIAL MANAGER: Mr. D. Erasmus (SAICA Reg No: 200522562)
LABORATORY MANAGER: Mr. K. Booysen





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Web: www.steynwilson.co.za

JOB NO: SWL01227 **Ref.:** - **DATE:** 14-Aug-18

Client	ITS Engineers	Project:	Erica Rd
	Carl Cronje Drive	Site / Road:	Erica Rd
	Bellville	Stake Value:	TP8
	7530	Test Hole No:	TP8
		Side Walls	Stable
Attention:	Mr Wilhelm de Klerk	Excavation Method	Pick & Shovel
GPS / WGS84	3394098 01866316	Refusal	None
		Water table	None
Sampling Method	TMH5 Method MC1	Enviromental Condition	Sunny and Hot with Wind

SOIL PROFILE - GRONDPROFIEL

DEPTH (mm)	PROFILE	DESCRIPTION	SAMPLE No.
0			
0-1000 (1000+)		Sl. Moist, Light yellowish Brown, Medium Dense, Silty fine to medium grain SAND, Intact, Insitu (HCL+)(Phen-)	2544

Surface Visual



Profile



Spoils





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JOB No: SWL01227 **Ref. No:** - **Date:** 14 August 2018

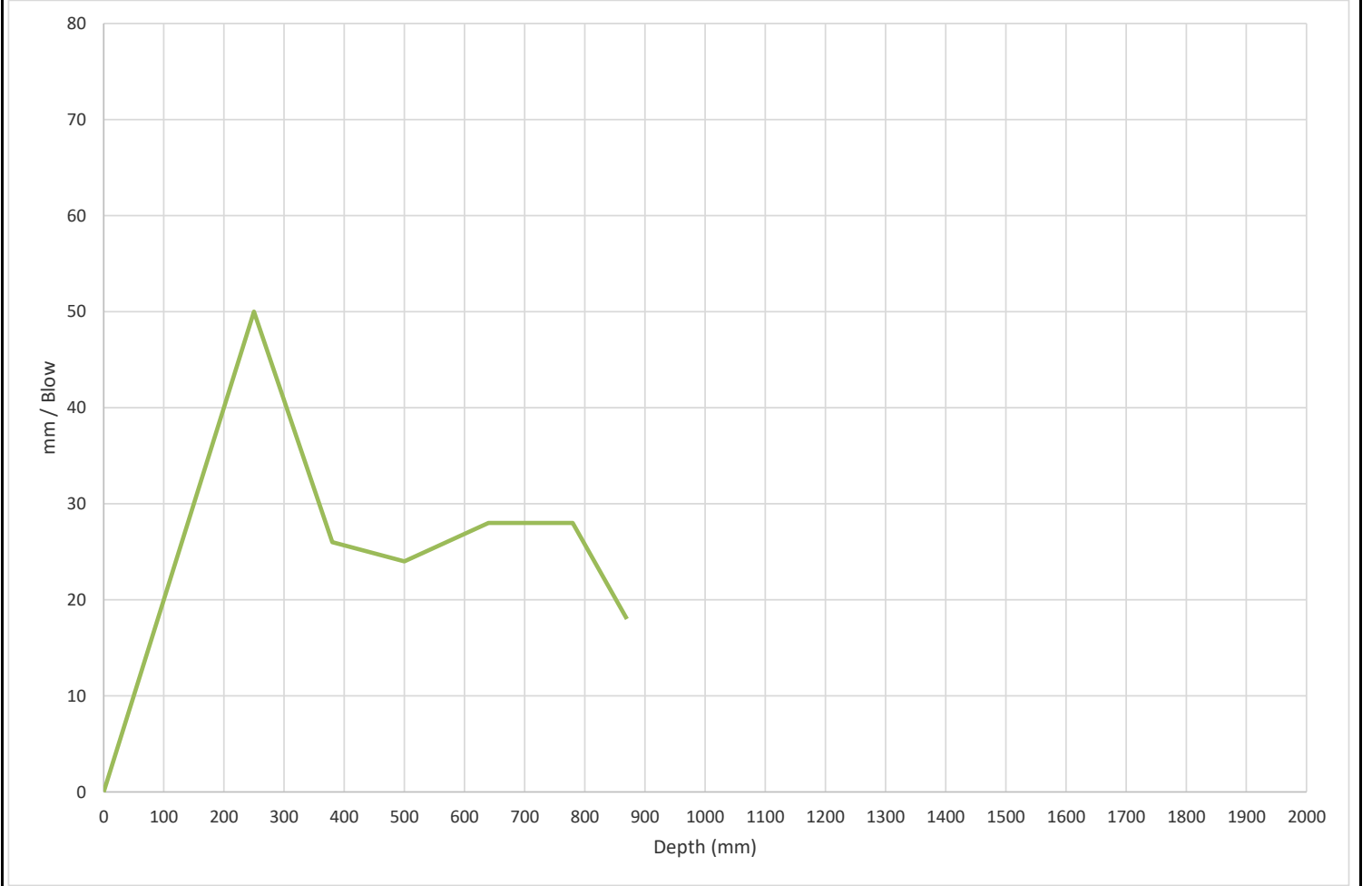
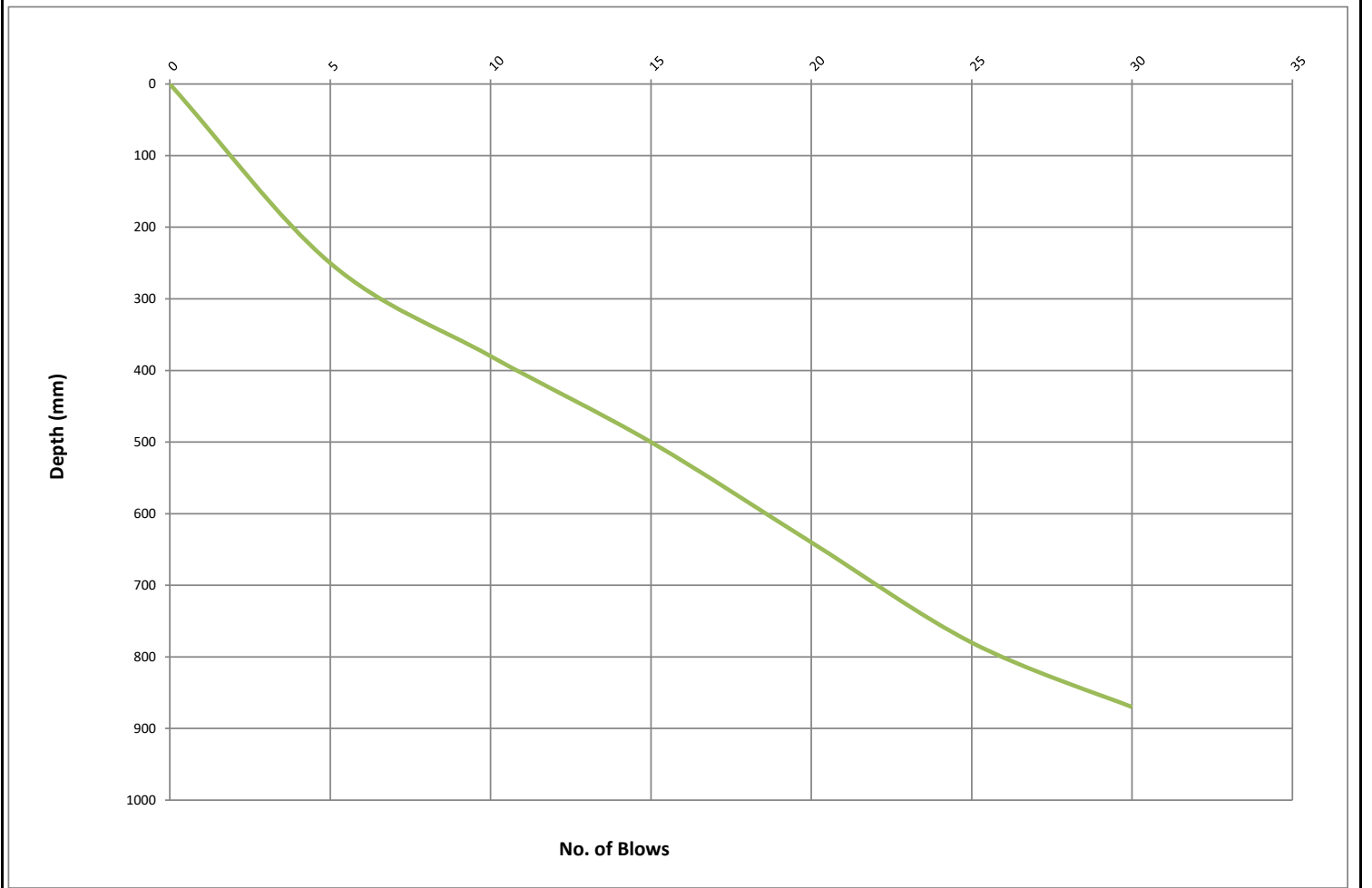
Client ITS Engineers
Carl Cronje Drive
Bellville
7530
Attention: Mr Wilhelm de Klerk

DYNAMIC CONE PENETROMETER TMH6 ST6

PROJECT:	Erica Rd	LEVEL:	Bottom of TP
TEST POSITION:	TP8	FOUNDATION:	-
TEST DEPTH:	1m	STARTING DEPTH:	180mm
MATERIAL TYPE:	Sandy Materials	Max. penetration depth:	870mm
CONSTRUCTION TYPE:	Road Construction	REFUSAL:	None
INSTRUMENT (DCP) SET No:	BT2-0003	NOB/TEST:	5

Number of Blows	Depth (mm)	Corrective Depth (mm)	Penetration Tempo	Structure Nr. (dn) mm/blow
0	180	0		
5	430	250	250	50
10	560	380	130	26
15	680	500	120	24
20	820	640	140	28
25	960	780	140	28
30	1050	870	90	18

GRAPHICAL REPRESENTATION / DYNAMIC CONE PENETROMETER TMH6 ST6



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CIVIL ENGINEERING TESTING LABORATORIES

JOB NO: SWL01227 **Your Ref** - **Date** 14 August 2018

ITS Engineers
Carl Cronje Drive
Bellville
7530

PROJECT: Erica Rd

ATTENTION: Mr Wilhelm de Klerk

TMH5 MD1, MD2 / SANS 3001 GR1, PR5, GR10, GR12, GR30, GR40

The unambiguous description of the sample/s as received are as follows :

SAMPLE No.	2544 A	SPEC	2544 B	SPEC		
HOLE No. / SV. / CHAINAGE	TP8		TP8			
ROAD No. OR NAME	Erica Road		Erica Road			
LAYER TESTED / SAMPLED FROM	0,0 - 0,5m		0,5 - 1,0m			
DATE RECEIVED	23.07.18		23.07.18			
CLIENTS MARKING	None	G8	None	G8		
DESCRIPTION OF SAMPLE (COLOUR & TYPE)	Light Yellowish Brown Sand		Light Yellowish Brown Sand			
REDUCTION FACTOR / RF CHECK	1,0000		1,0000			
	0,12	< 1%	1,45	< 1%		
SIEVE ANALYSIS (mm) SANS 3001 GR1	100,0	100	100			
	75,0	100	100			
	63,0	100	100			
	53,0	100	100			
	37,5	100	100	-	-	
	28,0	100	100	-	-	
	20,0	100	100	-	-	
	14,0	100	100	-	-	
	5,00	100	100	-	-	
	2,00	100	100	-	-	
	0,425	77	-	72	-	
	0,075	2	-	3	-	
ATTERBERG LIMITS SANS 3001 GR10, GR12	LL%	NP	≤ 7	NP	≤ 7	
	P.I.	NP	≤ 12	NP	≤ 12	
	LS%	0.0	-	0.0	-	
	GM	1,21	2.7≥ GM ≥ 0.75	1,26	2.7≥ GM ≥ 0.75	
SOIL-MORTAR PERCENTAGES SANS 3001 PR5	Coarse sand	22		23		
	Fine sand	76		74		
	Coarse fine sand	28		29		
	Medium fine sand	38		36		
	Fine fine sand	10		8		
	Silt and clay	2		3		
	Coarse sand ratio	0,2		0,2		
MOD AASHTO SANS 3001 GR30	OMC%	10,2		10,1		
	MDD(KG/M ³)	1693		1718		
C.B.R. SANS 3001 GR40	COMP MC	9,9		10,0		
	% SWELL	0.0	1,50	0.0	1,50	
	100%	19	-	24	-	
	98%	16	-	20	-	
	97%	15	-	18	-	
	95%	13	-	15	-	
	93%	10	10	12	10	
90%	8	-	9	-		
Electrical Conductivity TMH1 A21T*						
pH Value TMH1 A20*						
REMARKS / NOTES						

NOTE: All tests marked with (*) means that those test methods are not accredited.

Erika Drive Test Pit 9– Location: Open Field

Client: **ITS Engineers**
Project: Erica Rd
Attention: Mr Wilhelm de Klerk
Your Ref. No: -
Date Reported: Tuesday, 14 August 2018

TEST REPORT REFERENCE NUMBER / JOB NUMBER :

SWL01227

Dear Sir / Madam

Herewith please find the original reports pertaining to the above mentioned project.

Stake Value:

TP9

Test Requested

2x MDD / CBR /IND
1x 1m DCP

Site Sampling and Materials Information

Sampling Method: TMH5 Method MC1
Environmental Condition: Moderate

FINAL REPORT

We would like to take this opportunity to thank you for your valued support. Should you have any further enquiries please don't hesitate to contact me.

Yours Faithfully
STEYN-WILSON LABORATORIES (PTY) LTD

Remarks:

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Mr. R Wilson
Technical Signatory

DIRECTORS: Mr. J. Steyn ND-Civil (Managing) | Mr. R. Wilson B-Tech Civil (Operations)
FINANCIAL MANAGER: Mr. D. Erasmus (SAICA Reg No: 200522562)
LABORATORY MANAGER: Mr. K. Booysen





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JOB NO: SWL01227 **Ref.** - **DATE:** 14-Aug-18

Client	ITS Engineers	Project:	Erica Rd
	Carl Cronje Drive	Site / Road:	Erica Rd
	Bellville	Stake Value:	TP9
	7530	Test Hole No:	TP9
		Side Walls	Stable
Attention:	Mr Wilhelm de Klerk	Excavation Method	Pick & Shovel
GPS / WGS84	3394111 01866526	Refusal	None
		Water table	None
Sampling Method	TMH5 Method MC1	Enviromental Condition	Sunny and Hot with Wind

SOIL PROFILE - GRONDPROFIEL

DEPTH (mm)	PROFILE	DESCRIPTION	SAMPLE No.
0			
0-1000 (1000+)		Sl. Moist, Dark Brown, Medium Dense, Silty fine to medium grain SAND, Intact, Insitu (HCL+)(Phen-) Water Table : 1,0m	2545

Surface Visual



Profile



Spoils





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JOB No: SWL01227 **Ref. No:** - **Date:** 14 August 2018

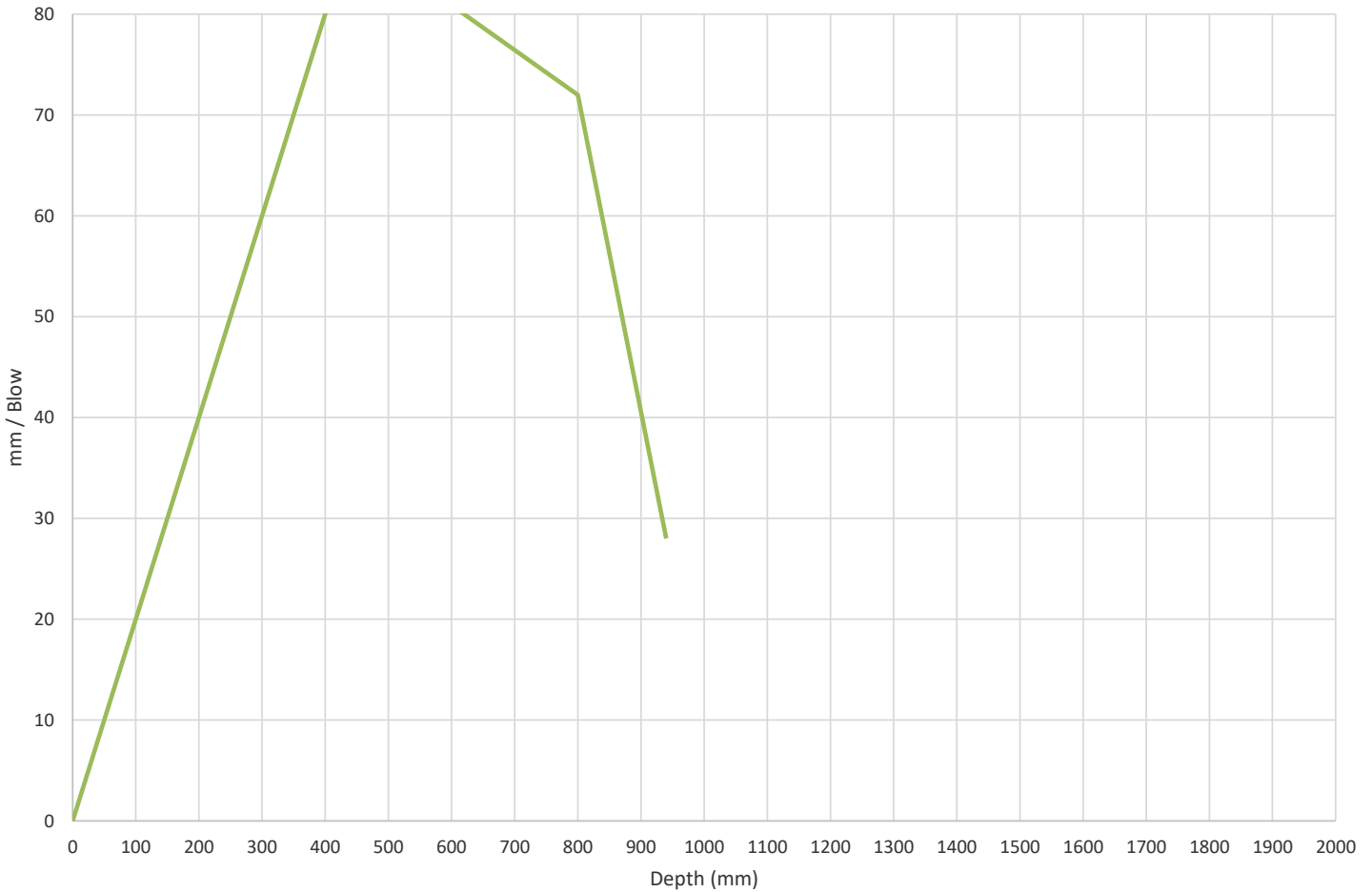
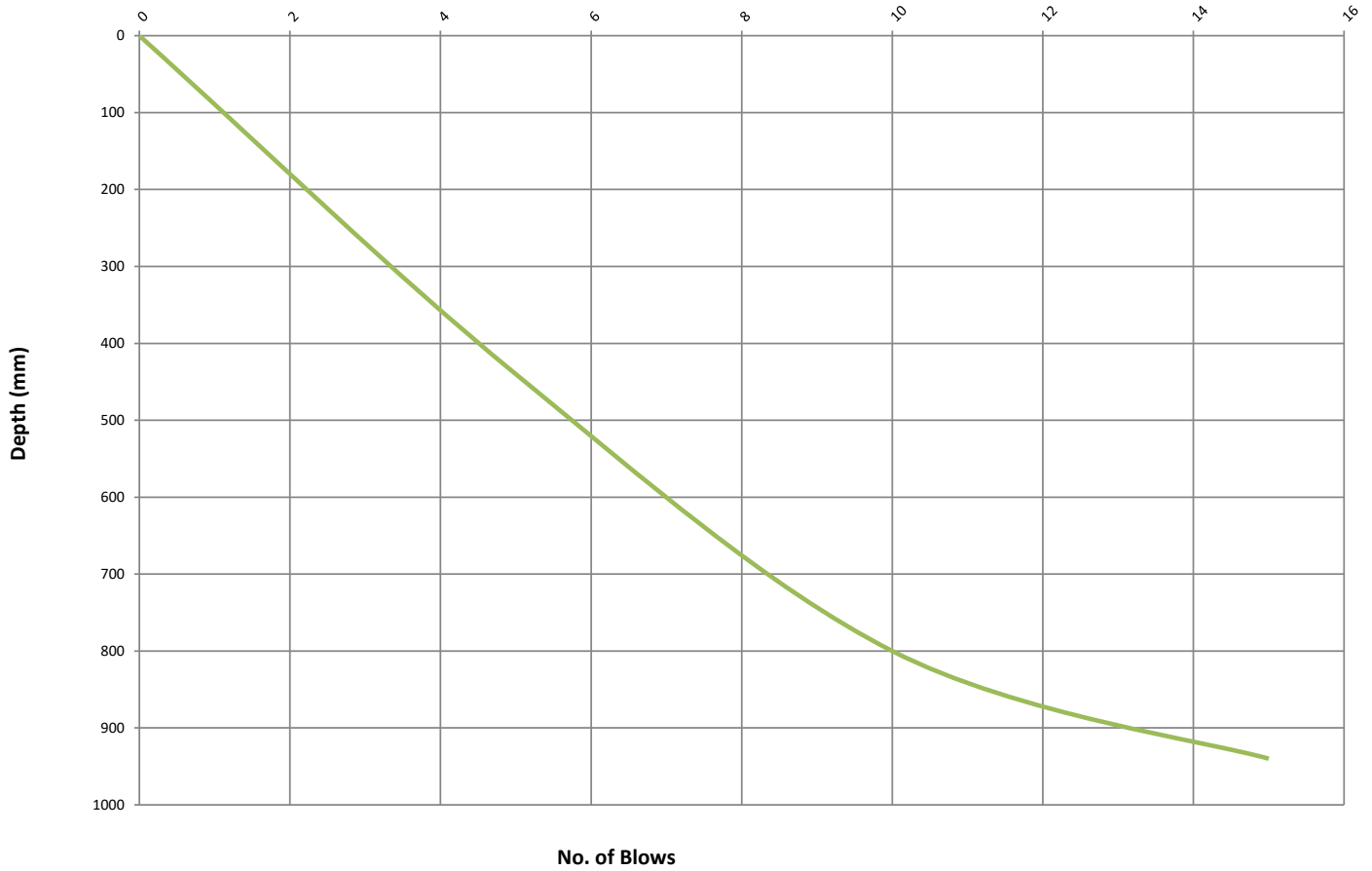
Client ITS Engineers
Carl Cronje Drive
Bellville
7530
Attention: Mr Wilhelm de Klerk

DYNAMIC CONE PENETROMETER TMH6 ST6

PROJECT:	Erica Rd	LEVEL:	Bottom of TP
TEST POSITION:	TP9	FOUNDATION:	-
TEST DEPTH:	1m	STARTING DEPTH:	160mm
MATERIAL TYPE:	Sandy Materials	Max. penetration depth:	940mm
CONSTRUCTION TYPE:	Road Construction	REFUSAL:	None
INSTRUMENT (DCP) SET No:	BT2-0003	NOB/TEST:	5

Number of Blows	Depth (mm)	Corrective Depth (mm)	Penetration Tempo	Structure Nr. (dn) mm/blow
0	160	0		
5	600	440	440	88
10	960	800	360	72
15	1100	940	140	28

GRAPHICAL REPRESENTATION / DYNAMIC CONE PENETROMETER TMH6 ST6



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CIVIL ENGINEERING TESTING LABORATORIES

JOB NO: SWL01227 **Your Ref** - **Date** 14 August 2018

ITS Engineers
Carl Cronje Drive
Bellville
7530

PROJECT: Erica Rd

ATTENTION: Mr Wilhelm de Klerk

TMH5 MD1, MD2 / SANS 3001 GR1, PR5, GR10, GR12, GR30, GR40

The unambiguous description of the sample/s as received are as follows :

SAMPLE No.	2545 A	SPEC	2545 B	SPEC		
HOLE No. / SV. / CHAINAGE	TP9		TP9			
ROAD No. OR NAME	Erica Road		Erica Road			
LAYER TESTED / SAMPLED FROM	0,0 - 0,5m		0,0 - 0,5m			
DATE RECEIVED	23.07.18		23.07.18			
CLIENTS MARKING	None	G8	None	G8		
DESCRIPTION OF SAMPLE (COLOUR & TYPE)	Dark Brown Sand		Dark Brown Sand			
REDUCTION FACTOR / RF CHECK	1,0000		1,0000			
	0,18	< 1%	0,51	< 1%		
SIEVE ANALYSIS (mm) SANS 3001 GR1	100,0	100	100			
	75,0	100	100			
	63,0	100	100			
	53,0	100	100			
	37,5	100	100	-	-	
	28,0	100	100	-	-	
	20,0	100	100	-	-	
	14,0	100	100	-	-	
	5,00	100	100	-	-	
	2,00	100	100	-	-	
	0,425	73	-	69	-	
	0,075	29	-	28	-	
ATTERBERG LIMITS SANS 3001 GR10, GR12	LL%	NP	NP	≤ 7		
	P.I.	NP	NP	≤ 12		
	LS%	0.0	0.0	-	-	
	GM	0,98	2.7≥ GM ≥ 0.75	1,04	2.7≥ GM ≥ 0.75	
SOIL-MORTAR PERCENTAGES SANS 3001 PR5	Coarse sand	26	29			
	Fine sand	45	43			
	Coarse fine sand	18	14			
	Medium fine sand	18	21			
	Fine fine sand	9	7			
	Silt and clay	29	29			
	Coarse sand ratio	0,3	0,3			
MOD AASHTO SANS 3001 GR30	OMC%	9,0	9,5			
	MDD(KG/M ³)	1784	1803			
C.B.R. SANS 3001 GR40	COMP MC	8,7	9,2			
	% SWELL	0.0	0.0	1,50	1,50	
	100%	18	25	-	-	
	98%	16	19	-	-	
	97%	14	17	-	-	
	95%	12	14	-	-	
	93%	10	10	10	10	
90%	8	7	-	-		
Electrical Conductivity TMH1 A21T*						
pH Value TMH1 A20*						
REMARKS / NOTES						

NOTE: All tests marked with (*) means that those test methods are not accredited.

Erika Drive Test Pit 10 – Location: Open Field

Client: **ITS Engineers**
Project: Erica Rd
Attention: Mr Wilhelm de Klerk
Your Ref. No: -
Date Reported: Tuesday, 14 August 2018

TEST REPORT REFERENCE NUMBER / JOB NUMBER :

SWL01227

Dear Sir / Madam

Herewith please find the original reports pertaining to the above mentioned project.

Stake Value:

TP10

Test Requested

2x MDD / CBR /IND
1x 1m DCP

Site Sampling and Materials Information

Sampling Method: TMH5 Method MC1
Environmental Condition: Moderate

FINAL REPORT

We would like to take this opportunity to thank you for your valued support. Should you have any further enquiries please don't hesitate to contact me.

Yours Faithfully
STEYN-WILSON LABORATORIES (PTY) LTD

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Mr. R Wilson
Technical Signatory



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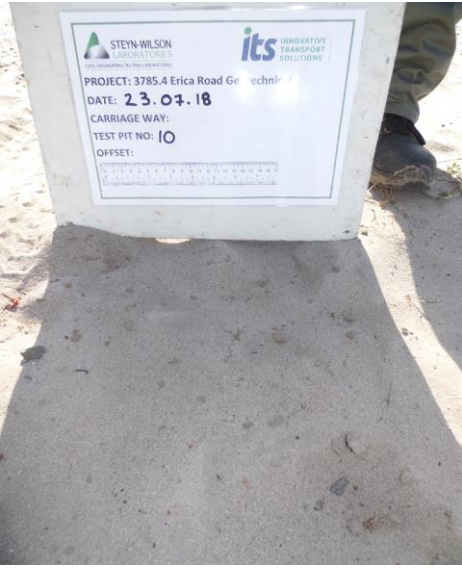
JOB NO: SWL01227 **Ref.** - **DATE:** 14-Aug-18

Client	ITS Engineers	Project:	Erica Rd
	Carl Cronje Drive	Site / Road:	Erica Rd
	Bellville	Stake Value:	TP10
	7530	Test Hole No:	TP10
		Side Walls	Stable
Attention:	Mr Wilhelm de Klerk	Excavation Method	Pick & Shovel
GPS / WGS84	3394151 01866735	Refusal	None
		Water table	None
Sampling Method	TMH5 Method MC1	Enviromental Condition	Sunny and Hot with Wind

SOIL PROFILE - GRONDPROFIEL

DEPTH (mm)	PROFILE	DESCRIPTION	SAMPLE No.
0			
0-1000 (1000+)		Sl. Moist, Dark Brown, Medium Dense, Silty fine to medium grain SAND, Intact, Insitu (HCL+)(Phen-) Water Table : 1,0m	2546

Surface Visual



Profile



Spoils





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JOB No: SWL01227 **Ref. No:** - **Date:** 14 August 2018

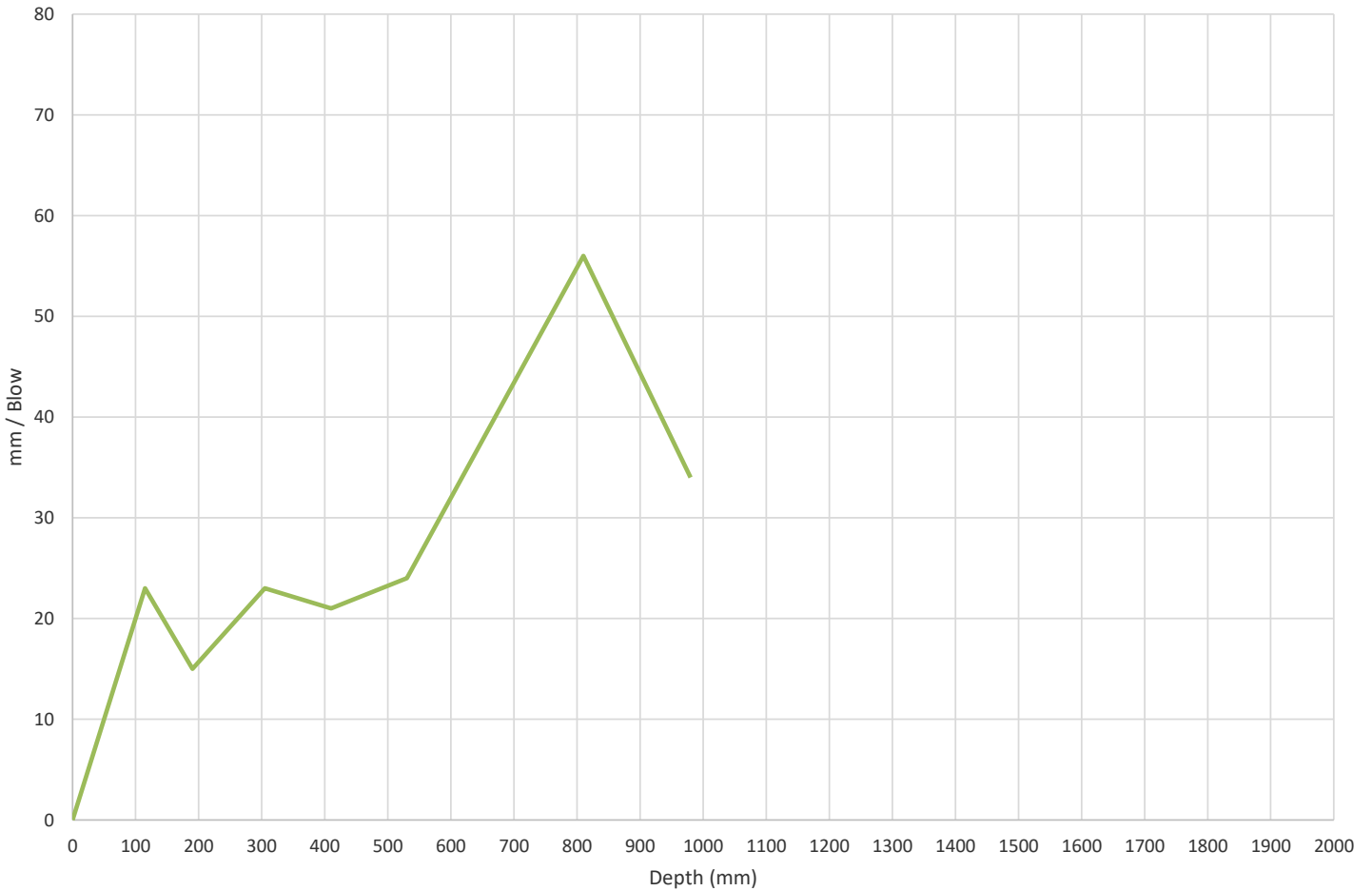
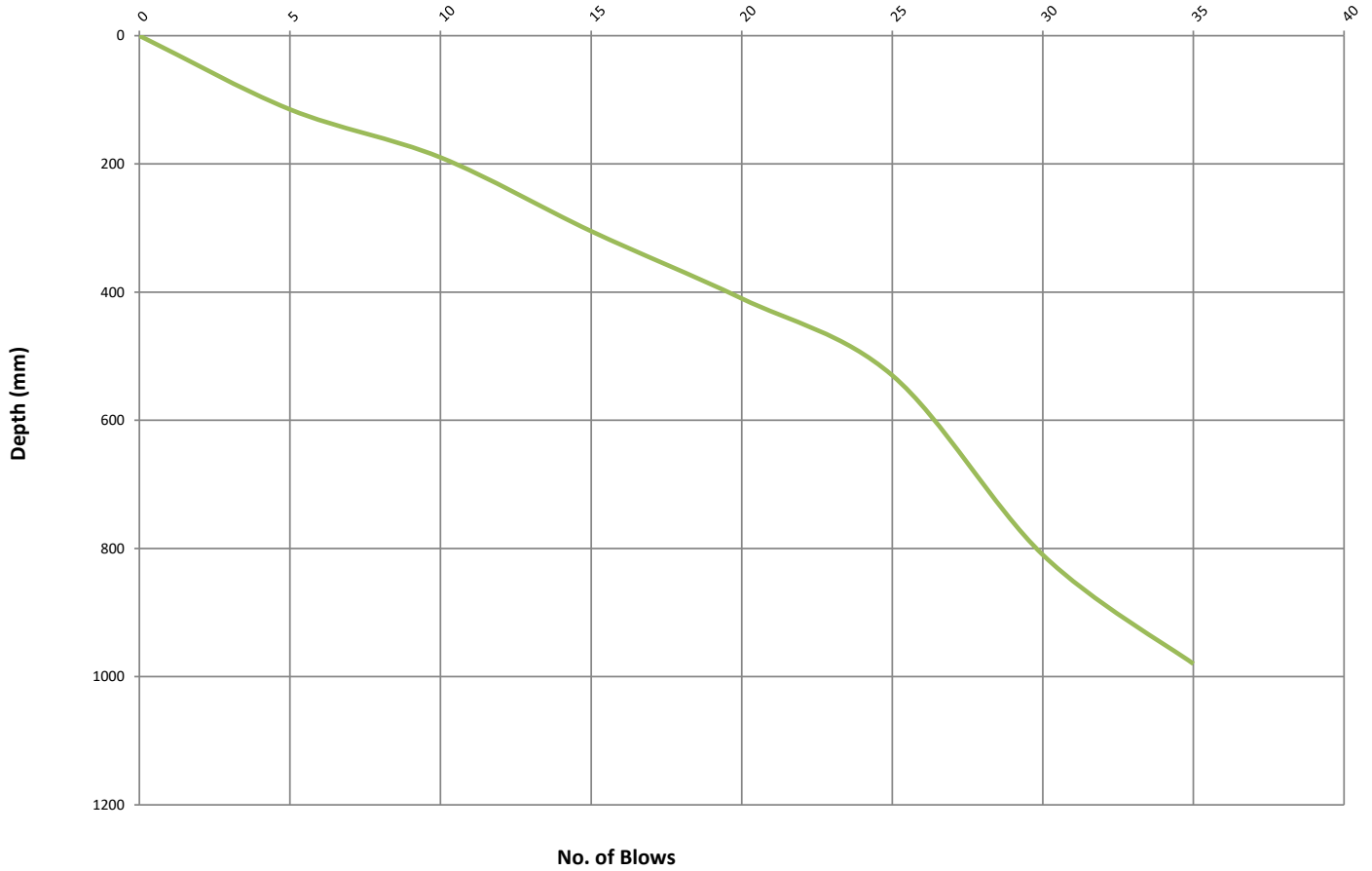
Client ITS Engineers
Carl Cronje Drive
Bellville
7530
Attention: Mr Wilhelm de Klerk

DYNAMIC CONE PENETROMETER TMH6 ST6

PROJECT:	Erica Rd	LEVEL:	1.0m Below NGL
TEST POSITION:	TP10	FOUNDATION:	-
TEST DEPTH:	1m	STARTING DEPTH:	180mm
MATERIAL TYPE:	Sandy Materials	Max. penetration depth:	980mm
CONSTRUCTION TYPE:	Road Construction	REFUSAL:	None
INSTRUMENT (DCP) SET No:	BT2-0003	NOB/TEST:	5

Number of Blows	Depth (mm)	Corrective Depth (mm)	Penetration Tempo	Structure Nr. (dn) mm/blow
0	180	0		
5	295	115	115	23
10	370	190	75	15
15	485	305	115	23
20	590	410	105	21
25	710	530	120	24
30	990	810	280	56
35	1160	980	170	34

GRAPHICAL REPRESENTATION / DYNAMIC CONE PENETROMETER TMH6 ST6



NOTE: All tests marked with (*) means that those test methods are not accredited.



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CIVIL ENGINEERING TESTING LABORATORIES

JOB NO: SWL01227 **Your Ref** - **Date** 14 August 2018

ITS Engineers
Carl Cronje Drive
Bellville
7530

PROJECT: Erica Rd

ATTENTION: Mr Wilhelm de Klerk

TMH5 MD1, MD2 / SANS 3001 GR1, PR5, GR10, GR12, GR30, GR40

The unambiguous description of the sample/s as received are as follows :

SAMPLE No.	2546 A	SPEC	2546 B	SPEC		
HOLE No. / SV. / CHAINAGE	TP10	G9	TP10	G8		
ROAD No. OR NAME	Erica Road		Erica Road			
LAYER TESTED / SAMPLED FROM	0,0 - 0,5m		0,5 - 1,0m			
DATE RECEIVED	23.07.18		23.07.18			
CLIENTS MARKING	None		None			
DESCRIPTION OF SAMPLE (COLOUR & TYPE)	Dark Brown Sand		Dark Brown Sand			
REDUCTION FACTOR / RF CHECK	1,0000		1,0000			
	0,08	< 1%	0,28	< 1%		
SIEVE ANALYSIS (mm) SANS 3001 GR1	100,0	100	100			
	75,0	100	100			
	63,0	100	100			
	53,0	100	100			
	37,5	100	100	-	-	
	28,0	100	100	-	-	
	20,0	100	100	-	-	
	14,0	100	100	-	-	
	5,00	100	100	-	-	
	2,00	99	-	99	-	
	0,425	65	-	63	-	
	0,075	1	-	3	-	
ATTERBERG LIMITS SANS 3001 GR10, GR12	LL%	NP	≤ 7	NP	≤ 7	
	P.I.	NP	≤ 12	NP	≤ 12	
	LS%	0.0	-	0.0	-	
	GM	1,34	2.7≥ GM ≥ 0.75	1,35	2.7≥ GM ≥ 0.75	
SOIL-MORTAR PERCENTAGES SANS 3001 PR5	Coarse sand	34		36		
	Fine sand	64		62		
	Coarse fine sand	35		35		
	Medium fine sand	23		20		
	Fine fine sand	7		6		
	Silt and clay	1		3		
	Coarse sand ratio	0,3		0,4		
MOD AASHTO SANS 3001 GR30	OMC%	9,8		10,2		
	MDD(KG/M ³)	1804		1788		
C.B.R. SANS 3001 GR40	COMP MC	9,5		10,1		
	% SWELL	0.0	1,50	0.0	1,50	
	100%	21	-	20	-	
	98%	16	-	17	-	
	97%	15	-	15	-	
	95%	12	-	13	-	
	93%	9	7	10	10	
90%	7	-	8	-		
Electrical Conductivity TMH1 A21T*						
pH Value TMH1 A20*						
REMARKS / NOTES						

NOTE: All tests marked with (*) means that those test methods are not accredited.

Erika Drive Test Pit 11 – Location: Open Field

Client: **ITS Engineers**
Project: Erica Rd
Attention: Mr Wilhelm de Klerk
Your Ref. No: -
Date Reported: Tuesday, 14 August 2018

TEST REPORT REFERENCE NUMBER / JOB NUMBER :

SWL01227

Dear Sir / Madam

Herewith please find the original reports pertaining to the above mentioned project.

Stake Value:

TP11

Test Requested

2x MDD / CBR /IND
1x 1m DCP

Site Sampling and Materials Information

Sampling Method: TMH5 Method MC1
Environmental Condition: Moderate

FINAL REPORT

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Yours Faithfully
STEYN-WILSON LABORATORIES (PTY) LTD

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Mr. R Wilson
Technical Signatory



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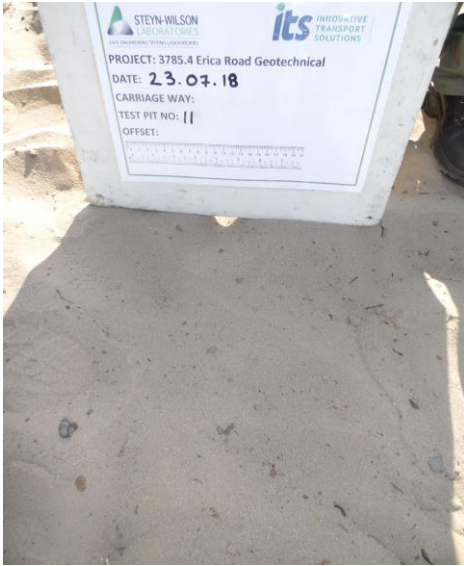
JOB NO:	SWL01227	Ref.	-	DATE:	14-Aug-18
Client	ITS Engineers Carl Cronje Drive Bellville 7530	Project:	Erica Rd	Site / Road:	Erica Rd
Attention:	Mr Wilhelm de Klerk	Stake Value:	TP11	Test Hole No:	TP11
GPS / WGS84	3394183 01866948	Side Walls	Stable	Excavation Method	Pick & Shovel
Refusal		Water table	None	Refusal	None
Sampling Method	TMH5 Method MC1	Environmental Condition	Sunny and Hot with Wind		

SOIL PROFILE - GRONDPROFIEL

DEPTH (mm)	PROFILE	DESCRIPTION	SAMPLE No.
0			
0-600 (600)		Sl. Moist, Light Brown, Medium Dense, Silty fine to medium grain SAND, Intact, Insitu (HCL-)(Phen-)	2547
600-1000+ (400+)		Sl. Moist, Dark yellowish Brown, Medium Dense, Silty fine to medium grain SAND, Intact, Insitu (HCL-)(Phen-)	2548

Surface Visual

Profile



Spoils





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JOB No: SWL01227 **Ref. No:** - **Date:** 14 August 2018

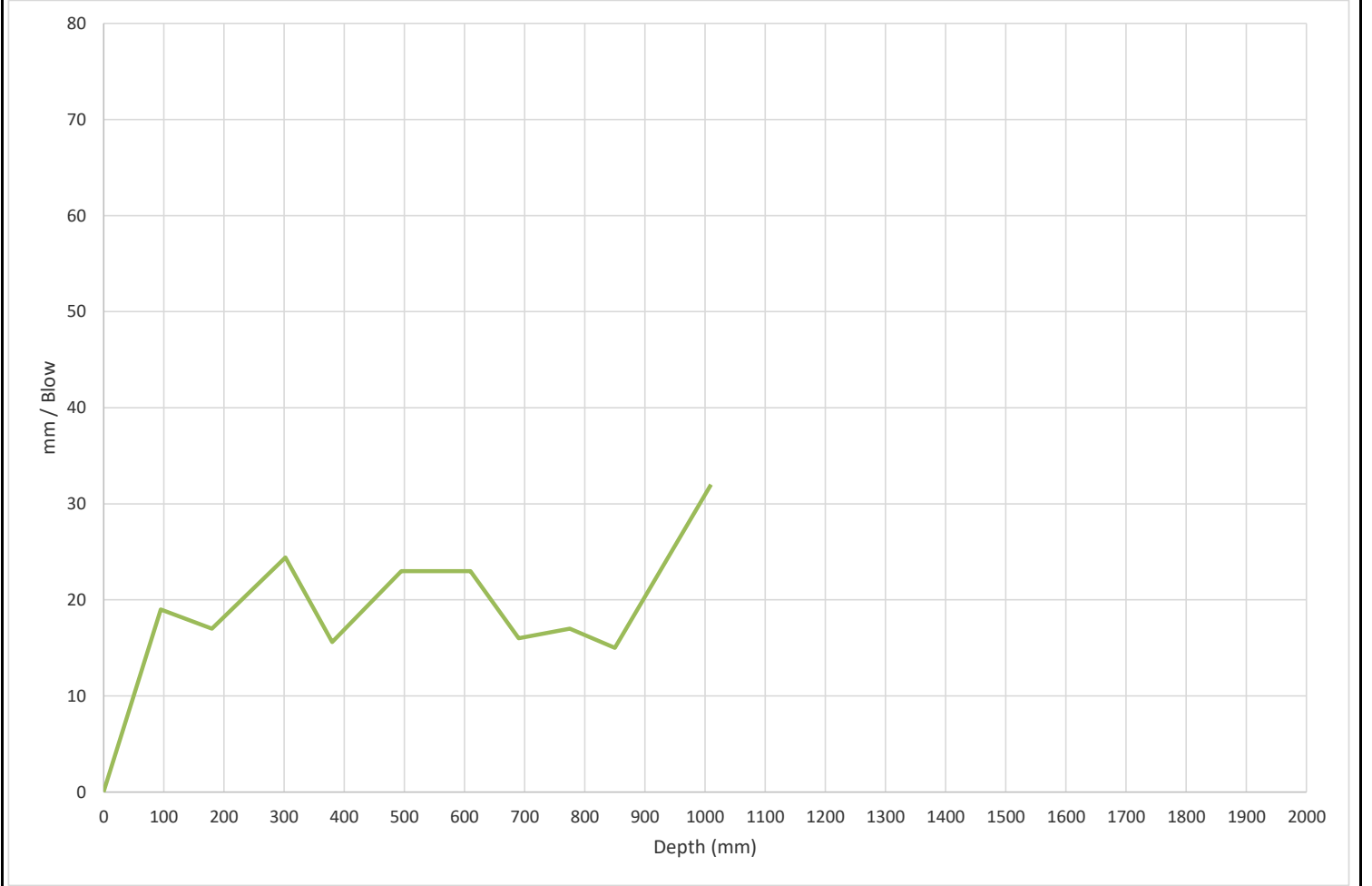
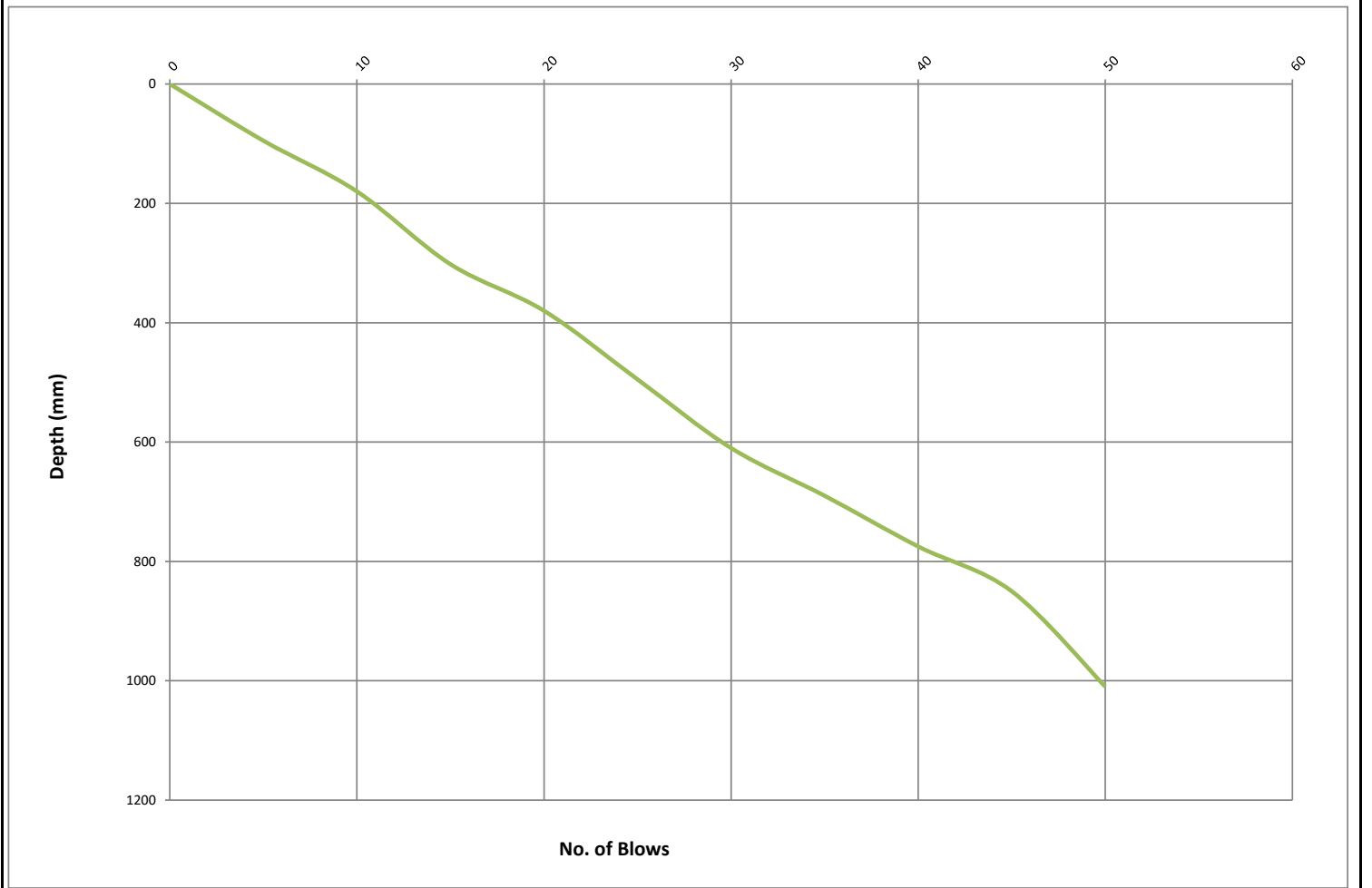
Client ITS Engineers
Carl Cronje Drive
Bellville
7530
Attention: Mr Wilhelm de Klerk

DYNAMIC CONE PENETROMETER TMH6 ST6

PROJECT:	Erica Rd	LEVEL:	1.0m Below NGL
TEST POSITION:	TP11	FOUNDATION:	-
TEST DEPTH:	1m	STARTING DEPTH:	80mm
MATERIAL TYPE:	Sandy Materials	Max. penetration depth:	1010mm
CONSTRUCTION TYPE:	Road Construction	REFUSAL:	None
INSTRUMENT (DCP) SET No:	BT2-0003	NOB/TEST:	5

Number of Blows	Depth (mm)	Corrective Depth (mm)	Penetration Tempo	Structure Nr. (dn) mm/blow
0	80	0		
5	175	95	95	19
10	260	180	85	17
15	382	302	122	24
20	460	380	78	16
25	575	495	115	23
30	690	610	115	23
35	770	690	80	16
40	855	775	85	17
45	930	850	75	15
50	1090	1010	160	32

GRAPHICAL REPRESENTATION / DYNAMIC CONE PENETROMETER TMH6 ST6



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CIVIL ENGINEERING TESTING LABORATORIES

JOB NO: SWL01227 **Your Ref** - **Date** 14 August 2018

ITS Engineers
Carl Cronje Drive
Bellville
7530

PROJECT: Erica Rd

ATTENTION: Mr Wilhelm de Klerk

TMH5 MD1, MD2 / SANS 3001 GR1, PR5, GR10, GR12, GR30, GR40

The unambiguous description of the sample/s as received are as follows :

SAMPLE No.	2547	SPEC	2548	SPEC		
HOLE No. / SV. / CHAINAGE	TP11		TP11			
ROAD No. OR NAME	Erica Road		Erica Road			
LAYER TESTED / SAMPLED FROM	0,0 - 0,5m		0,5 - 1,0m			
DATE RECEIVED	23.07.18		23.07.18			
CLIENTS MARKING	None	G9	None	G9		
DESCRIPTION OF SAMPLE (COLOUR & TYPE)	Light Brown Sand		Dark Yellowish Brown Sand			
REDUCTION FACTOR / RF CHECK	1,0000		1,0000			
	0,11	< 1%	0,14	< 1%		
SIEVE ANALYSIS (mm) SANS 3001 GR1	100,0	100	100			
	75,0	100	100			
	63,0	100	100			
	53,0	100	100			
	37,5	100	100	-	-	
	28,0	100	100	-	-	
	20,0	100	100	-	-	
	14,0	100	100	-	-	
	5,00	100	100	-	-	
	2,00	99	100	-	-	
	0,425	76	100	61	-	
	0,075	4	100	1	-	
ATTERBERG LIMITS SANS 3001 GR10, GR12	LL%	NP	NP	≤ 7		
	P.I.	NP	NP	≤ 12		
	LS%	0.0	0.0	-	-	
	GM	1,21	1,39	2.7≥ GM ≥ 0.75	2.7≥ GM ≥ 0.75	
SOIL-MORTAR PERCENTAGES SANS 3001 PR5	Coarse sand	23	39			
	Fine sand	73	61			
	Coarse fine sand	25	31			
	Medium fine sand	36	24			
	Fine fine sand	12	6			
	Silt and clay	4	1			
	Coarse sand ratio	0,2	0,4			
MOD AASHTO SANS 3001 GR30	OMC%	11,2	10,1			
	MDD(KG/M ³)	1711	1717			
C.B.R. SANS 3001 GR40	COMP MC	10,9	9,8			
	% SWELL	0.0	0.0	1,50	1,50	
	100%	24	14	-	-	
	98%	18	12	-	-	
	97%	16	10	-	-	
	95%	12	9	-	-	
	93%	9	8	7	7	
90%	6	6	-	-		
Electrical Conductivity TMH1 A21T*						
pH Value TMH1 A20*						
REMARKS / NOTES						

NOTE: All tests marked with (*) means that those test methods are not accredited.

Erika Drive Test Pit 12 – Location: Open Field

Client: **ITS Engineers**
Project: Erica Rd
Attention: Mr Wilhelm de Klerk
Your Ref. No: -
Date Reported: Tuesday, 14 August 2018

TEST REPORT REFERENCE NUMBER / JOB NUMBER :

SWL01227

Dear Sir / Madam

Herewith please find the original reports pertaining to the above mentioned project.

Stake Value:

TP12

Test Requested

2x MDD / CBR /IND
1x 1m DCP

Site Sampling and Materials Information

Sampling Method: TMH5 Method MC1
Environmental Condition: Moderate

FINAL REPORT

We would like to take this opportunity to thank you for your valued support. Should you have any further enquiries please don't hesitate to contact me.

Yours Faithfully
STEYN-WILSON LABORATORIES (PTY) LTD

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Mr. R Wilson
Technical Signatory



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Web: www.steynwilson.co.za

JOB NO:	SWL01227	Ref.	-	DATE:	14-Aug-18
Client	ITS Engineers Carl Cronje Drive Bellville 7530	Project:	Erica Rd	Site / Road:	Erica Rd
Attention:	Mr Wilhelm de Klerk	Stake Value:	TP12	Test Hole No:	TP12
GPS / WGS84	3394218 01867162	Side Walls	Stable	Excavation Method	Pick & Shovel
Sampling Method	TMH5 Method MC1	Refusal	None	Water table	None
		Environmental Condition	Sunny and Hot with Wind		

SOIL PROFILE - GRONDPROFIEL

DEPTH (mm)	PROFILE	DESCRIPTION	SAMPLE No.
0			
0-600 (600)		Sl. Moist, Dark Brown, Medium Dense, Silty fine to medium grain SAND with Building Rubble, Intact, Insitu (HCL+)(Phen-)	2549
600-1000+ (400+)		Sl. Moist, Light greyish Brown, Medium Dense, Silty fine to medium grain SAND, Intact, Insitu (HCL-)(Phen-)	2550

Surface Visual



Profile



Spoils





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JOB No: SWL01227 **Ref. No:** - **Date:** 14 August 2018

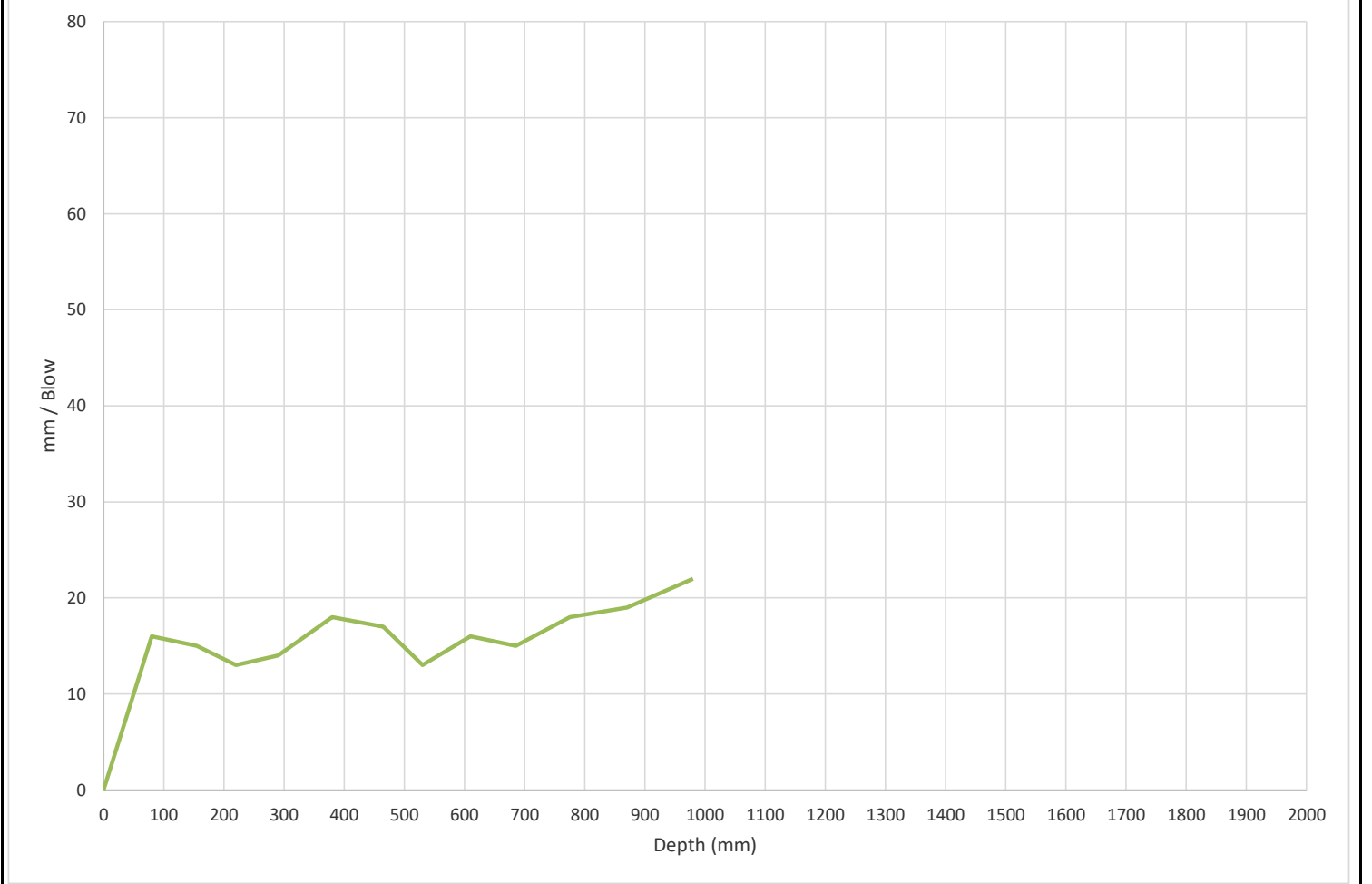
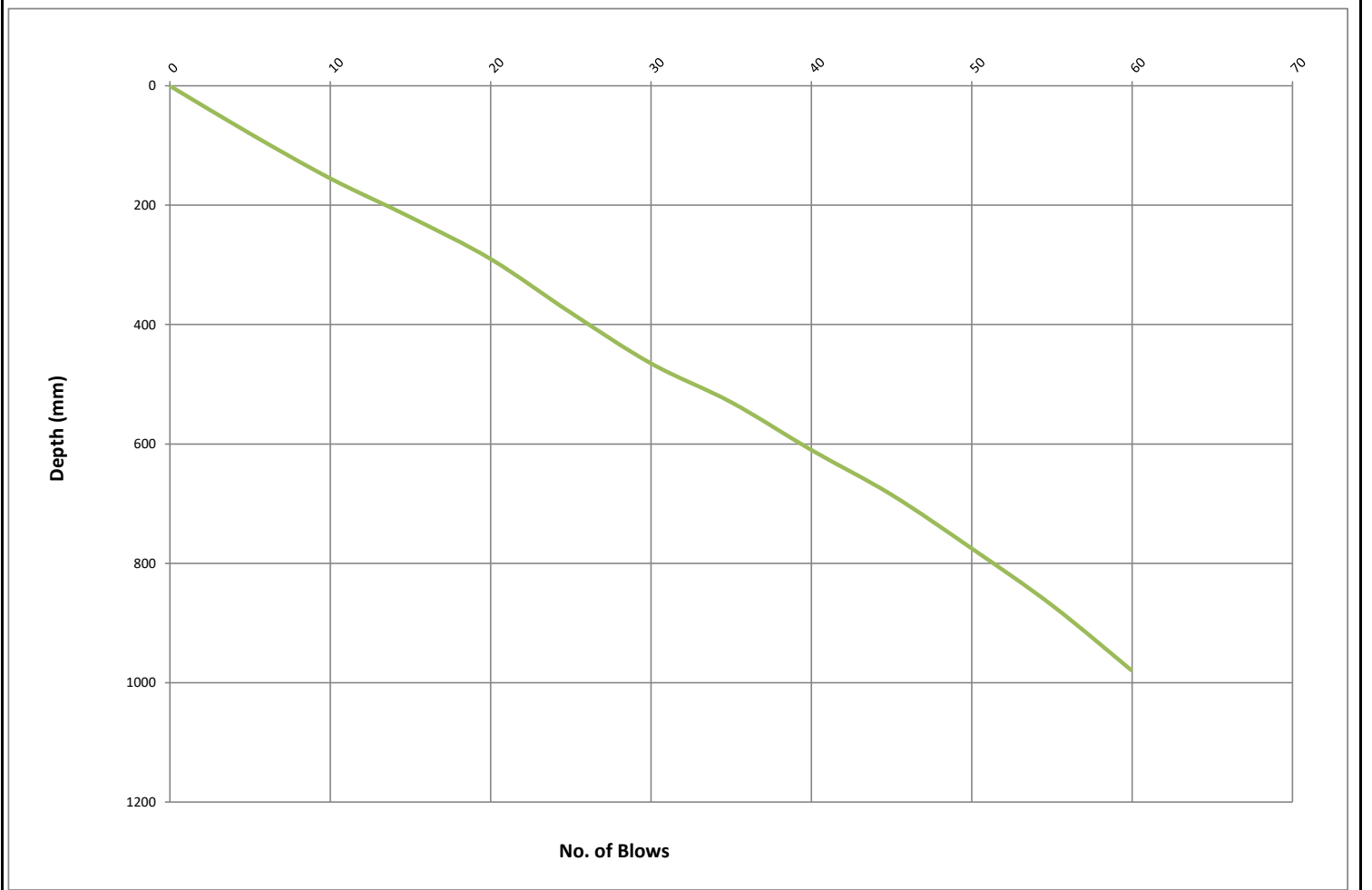
Client ITS Engineers
Carl Cronje Drive
Bellville
7530
Attention: Mr Wilhelm de Klerk

DYNAMIC CONE PENETROMETER TMH6 ST6

PROJECT:	Erica Rd	LEVEL:	1.0m Below NGL
TEST POSITION:	TP12	FOUNDATION:	-
TEST DEPTH:	1m	STARTING DEPTH:	105mm
MATERIAL TYPE:	Sandy Materials	Max. penetration depth:	980mm
CONSTRUCTION TYPE:	Road Construction	REFUSAL:	None
INSTRUMENT (DCP) SET No:	BT2-0003	NOB/TEST:	5

Number of Blows	Depth (mm)	Corrective Depth (mm)	Penetration Tempo	Structure Nr. (dn) mm/blow
0	105	0		
5	185	80	80	16
10	260	155	75	15
15	325	220	65	13
20	395	290	70	14
25	485	380	90	18
30	570	465	85	17
35	635	530	65	13
40	715	610	80	16
45	790	685	75	15
50	880	775	90	18
55	975	870	95	19
60	1085	980	110	22

GRAPHICAL REPRESENTATION / DYNAMIC CONE PENETROMETER TMH6 ST6



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CIVIL ENGINEERING TESTING LABORATORIES

JOB NO: SWL01227 **Your Ref** - **Date** 14 August 2018

ITS Engineers
Carl Cronje Drive
Bellville
7530

PROJECT: Erica Rd

ATTENTION: Mr Wilhelm de Klerk

TMH5 MD1, MD2 / SANS 3001 GR1, PR5, GR10, GR12, GR30, GR40

The unambiguous description of the sample/s as received are as follows :

SAMPLE No.	2549	SPEC	2550	SPEC			
HOLE No. / SV. / CHAINAGE	TP12		TP12				
ROAD No. OR NAME	Erica Road		Erica Road				
LAYER TESTED / SAMPLED FROM	0,0 - 0,5m		0,5 - 1,0m				
DATE RECEIVED	25.07.18		25.07.18				
CLIENTS MARKING	None	G7	None	G9			
DESCRIPTION OF SAMPLE (COLOUR & TYPE)	Dark Brown Sand with Building Rubble		Light Greyish Brown Sand				
REDUCTION FACTOR / RF CHECK	0,0594		1,0000				
	0,15	< 1%	0,07	< 1%			
SIEVE ANALYSIS (mm) SANS 3001 GR1	100,0	88	100				
	75,0	85	100				
	63,0	81	100				
	53,0	79	100				
	37,5	77	100	-			
	28,0	76	100	-			
	20,0	74	100	-			
	14,0	73	100	-			
	5,00	70	100	-			
	2,00	68	100	-			
	0,425	53	-	82	-		
	0,075	2	-	1	-		
ATTERBERG LIMITS SANS 3001 GR10, GR12	LL%	NP	NP	≤ 7			
	P.I.	NP	NP	≤ 12			
	LS%	0.0	0.0	-			
	GM	1,78	2.7≥ GM ≥ 0.75	1,17	2.7≥ GM ≥ 0.75		
SOIL-MORTAR PERCENTAGES SANS 3001 PR5	Coarse sand	22	17				
	Fine sand	75	82				
	Coarse fine sand	40	41				
	Medium fine sand	28	33				
	Fine fine sand	8	7				
	Silt and clay	2	1				
	Coarse sand ratio	0,2		0,2			
MOD AASHTO SANS 3001 GR30	OMC%	12,2	10,3				
	MDD(KG/M ³)	1702	1739				
C.B.R. SANS 3001 GR40	COMP MC	11,9	10,0				
	% SWELL	0.0	1,50	0.0	1,50		
	100%	30	-	20	-		
	98%	25	-	16	-		
	97%	23	-	14	-		
	95%	19	-	12	-		
	93%	16	15	9	7		
	90%	12	-	7	-		
Electrical Conductivity TMH1 A21T*							
pH Value TMH1 A20*							
REMARKS / NOTES							

NOTE: All tests marked with (*) means that those test methods are not accredited.

Erika Drive Test Pit 13 – Location: Open Field

Client: **ITS Engineers**
Project: Erica Rd
Attention: Mr Wilhelm de Klerk
Your Ref. No: -
Date Reported: Tuesday, 14 August 2018

TEST REPORT REFERENCE NUMBER / JOB NUMBER :

SWL01227

Dear Sir / Madam

Herewith please find the original reports pertaining to the above mentioned project.

Stake Value:

TP13

Test Requested

2x MDD / CBR /IND
1x 1m DCP

Site Sampling and Materials Information

Sampling Method: TMH5 Method MC1
Environmental Condition: Moderate

FINAL REPORT

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Mr. R Wilson
Technical Signatory

DIRECTORS: Mr. J. Steyn ND-Civil (Managing) | Mr. R. Wilson B-Tech Civil (Operations)
FINANCIAL MANAGER: Mr. D. Erasmus (SAICA Reg No: 200522562)
LABORATORY MANAGER: Mr. K. Booysen





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JOB NO:	SWL01227	Ref.	-	DATE:	14-Aug-18
Client	ITS Engineers Carl Cronje Drive Bellville 7530	Project:	Erica Rd	Site / Road:	Erica Rd
Attention:	Mr Wilhelm de Klerk	Stake Value:	TP13	Test Hole No:	TP13
GPS / WGS84	3394257 01867376	Side Walls	Stable	Excavation Method	Pick & Shovel
Sampling Method	TMH5 Method MC1	Refusal	None	Water table	None
		Environmental Condition	Sunny and Hot with Wind		

SOIL PROFILE - GRONDPROFIEL

DEPTH (mm)	PROFILE	DESCRIPTION	SAMPLE No.
0			
0-750 (750)		Sl. Moist, Light Brown, Medium Dense, Silty fine to medium grain SAND, Intact, Insitu (HCL-)(Phen-)	2551
750-1000+ (250+)		Sl. Moist, Dark Grey, Medium Dense, Silty fine to medium grain SAND, Intact, Insitu (HCL-)(Phen-)	2552

Surface Visual



Profile



Spoils





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JOB No: SWL01227 **Ref. No:** - **Date:** 14 August 2018

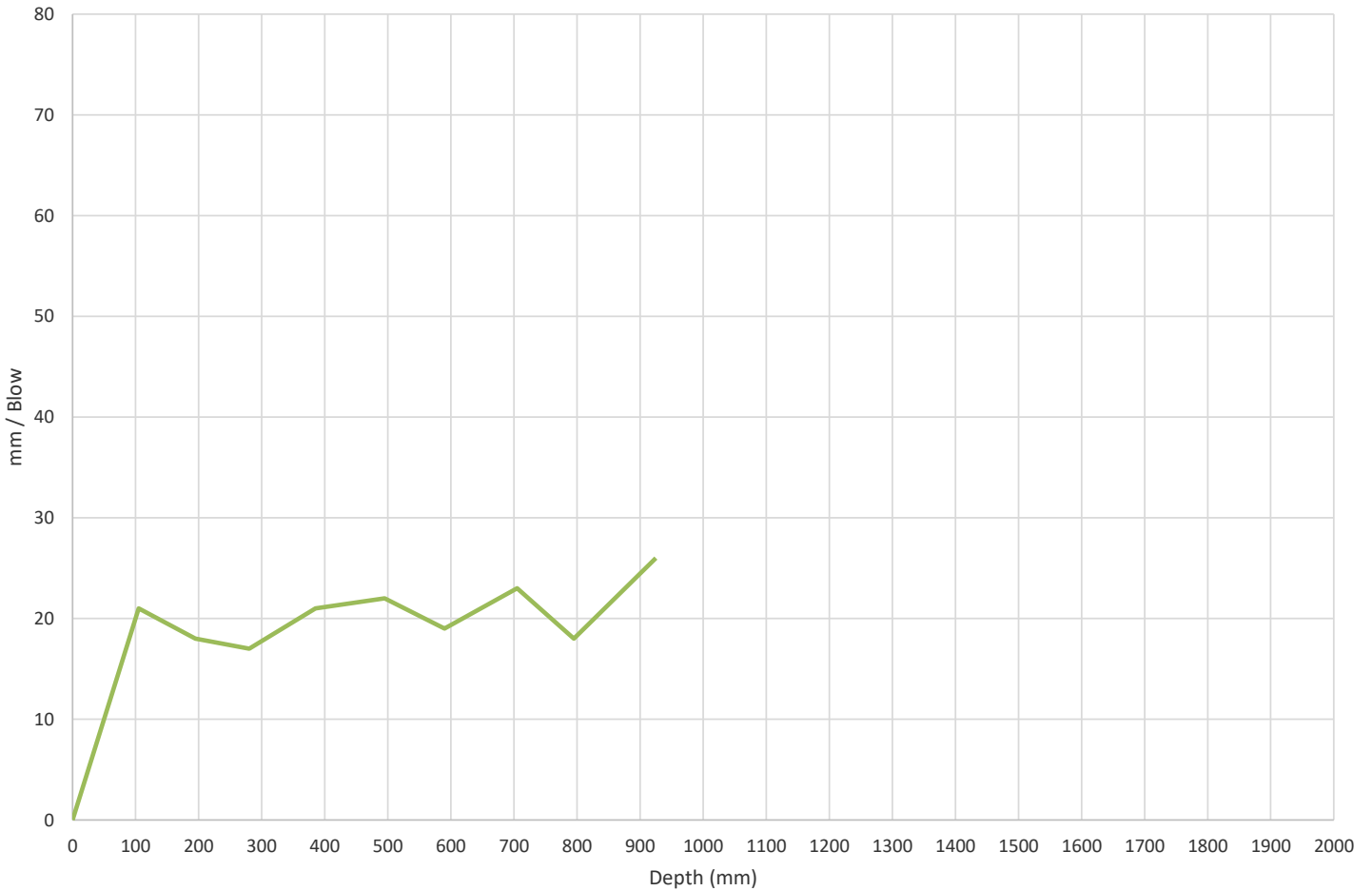
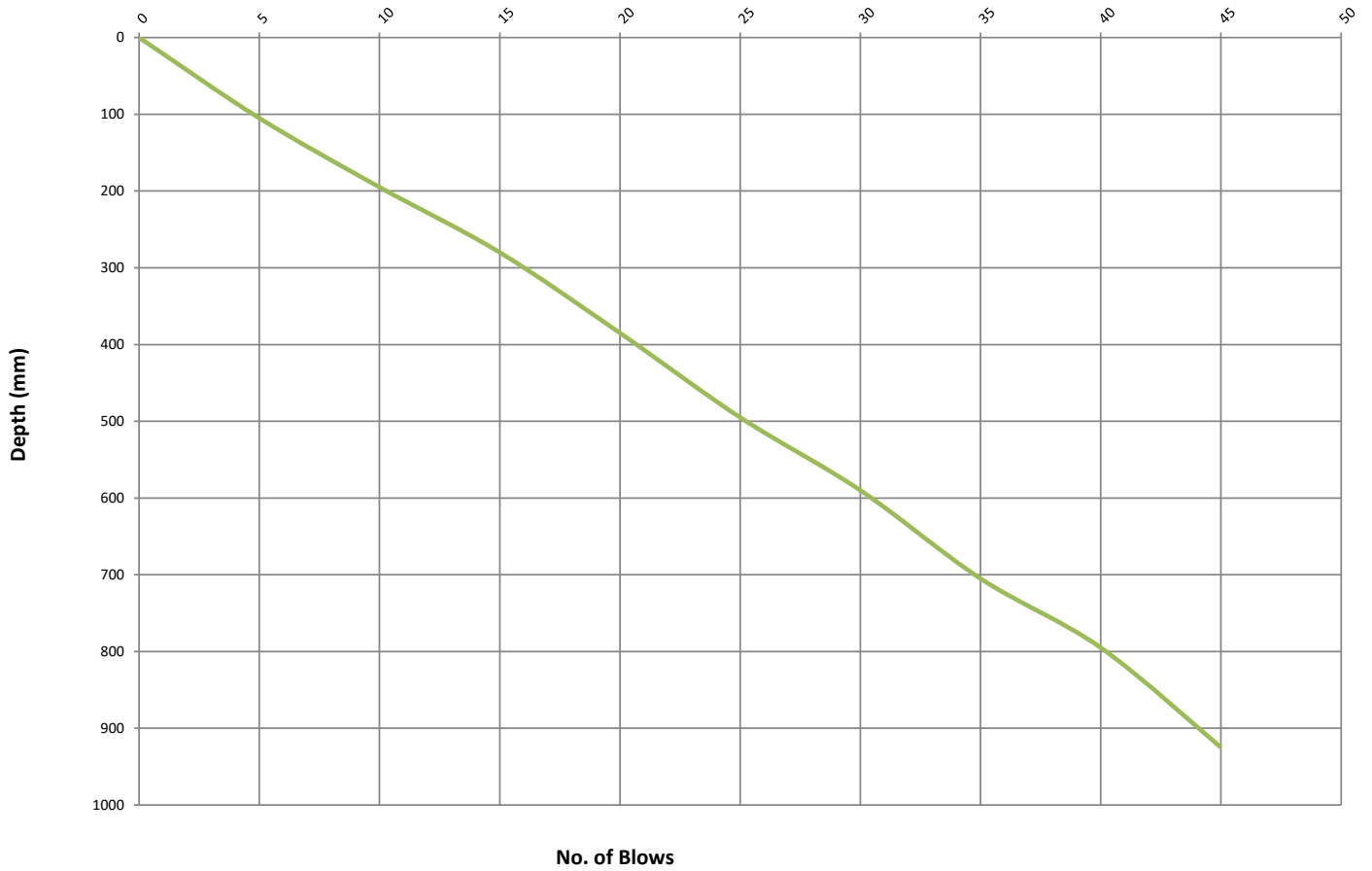
Client ITS Engineers
Carl Cronje Drive
Bellville
7530
Attention: Mr Wilhelm de Klerk

DYNAMIC CONE PENETROMETER TMH6 ST6

PROJECT:	Erica Rd	LEVEL:	1.0m Below NGL
TEST POSITION:	TP13	FOUNDATION:	-
TEST DEPTH:	1m	STARTING DEPTH:	85mm
MATERIAL TYPE:	Sandy Materials	Max. penetration depth:	925mm
CONSTRUCTION TYPE:	Road Construction	REFUSAL:	None
INSTRUMENT (DCP) SET No:	BT2-0003	NOB/TEST:	5

Number of Blows	Depth (mm)	Corrective Depth (mm)	Penetration Tempo	Structure Nr. (dn) mm/blow
0	85	0		
5	190	105	105	21
10	280	195	90	18
15	365	280	85	17
20	470	385	105	21
25	580	495	110	22
30	675	590	95	19
35	790	705	115	23
40	880	795	90	18
45	1010	925	130	26

GRAPHICAL REPRESENTATION / DYNAMIC CONE PENETROMETER TMH6 ST6



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CIVIL ENGINEERING TESTING LABORATORIES

JOB NO: SWL01227 **Your Ref** - **Date** 14 August 2018

ITS Engineers
Carl Cronje Drive
Bellville
7530

PROJECT: Erica Rd

ATTENTION: Mr Wilhelm de Klerk

TMH5 MD1, MD2 / SANS 3001 GR1, PR5, GR10, GR12, GR30, GR40

The unambiguous description of the sample/s as received are as follows :

SAMPLE No.	2551	SPEC	2552	SPEC		
HOLE No. / SV. / CHAINAGE	TP13	G8	TP13	G9		
ROAD No. OR NAME	Erica Road		Erica Road			
LAYER TESTED / SAMPLED FROM	0,0 - 0,5m		0,5 - 1,0m			
DATE RECEIVED	25.07.18		25.07.18			
CLIENTS MARKING	None		None			
DESCRIPTION OF SAMPLE (COLOUR & TYPE)	Light Brown Sand		Dark Grey Sand			
REDUCTION FACTOR / RF CHECK	1,0000 0,26	< 1%	1,0000 0,08	< 1%		
SIEVE ANALYSIS (mm) SANS 3001 GR1	100,0	100	100			
	75,0	100	100			
	63,0	100	100			
	53,0	100	100			
	37,5	100	100	-		
	28,0	100	100	-		
	20,0	100	100	-		
	14,0	100	100	-		
	5,00	100	100	-		
	2,00	100	99	-		
	0,425	73	75	-		
0,075	1	4	-			
ATTEBERG LIMITS SANS 3001 GR10, GR12	LL%	NP	≤ 7	NP	≤ 7	
	P.I.	NP	≤ 12	NP	≤ 12	
	LS%	0.0	-	0.0	-	
	GM	1,27	2.7≥ GM ≥ 0.75	1,23	2.7≥ GM ≥ 0.75	
SOIL-MORTAR PERCENTAGES SANS 3001 PR5	Coarse sand	27		24		
	Fine sand	72		72		
	Coarse fine sand	31		33		
	Medium fine sand	34		31		
	Fine fine sand	7		8		
	Silt and clay	1		4		
	Coarse sand ratio	0,3		0,2		
MOD AASHTO SANS 3001 GR30	OMC%	9,4		10,1		
	MDD(KG/M ³)	1808		1766		
C.B.R. SANS 3001 GR40	COMP MC	9,1		9,8		
	% SWELL	0.0	1,50	0.0	1,50	
	100%	24	-	15	-	
	98%	19	-	14	-	
	97%	17	-	13	-	
	95%	13	-	77	-	
	93%	10	10	9	7	
90%	7	-	7	-		
Electrical Conductivity TMH1 A21T*						
pH Value TMH1 A20*						
REMARKS / NOTES						

NOTE: All tests marked with (*) means that those test methods are not accredited.

Erika Drive Test Pit 14 – Location: Open Field

Client: **ITS Engineers**
Project: Erica Rd
Attention: Mr Wilhelm de Klerk
Your Ref. No: -
Date Reported: Tuesday, 14 August 2018

TEST REPORT REFERENCE NUMBER / JOB NUMBER :

SWL01227

Dear Sir / Madam

Herewith please find the original reports pertaining to the above mentioned project.

Stake Value:

TP14

Test Requested

2x MDD / CBR /IND
1x 1m DCP

Site Sampling and Materials Information

Sampling Method: TMH5 Method MC1
Environmental Condition: Moderate

FINAL REPORT

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Yours Faithfully
STEYN-WILSON LABORATORIES (PTY) LTD

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- Should there be any deviation from the prescribed test method comments will be made thereof, pertaining to the test on the relevant materials report.



Mr. R Wilson
Technical Signatory



STEYN-WILSON LABORATORIES

CIVIL ENGINEERING TESTING LABORATORIES

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Email: admin@steynwilson.co.za

Web: www.steynwilson.co.za

JOB NO:	SWL01227	Ref.	-	DATE:	14-Aug-18
Client	ITS Engineers Carl Cronje Drive Bellville 7530	Project:	Erica Rd	Site / Road:	Erica Rd
Attention:	Mr Wilhelm de Klerk	Stake Value:	TP14	Test Hole No:	TP14
GPS / WGS84	3394284 01867581	Side Walls	Stable	Excavation Method	Pick & Shovel
Sampling Method	TMH5 Method MC1	Refusal	None	Water table	None
		Environmental Condition	Sunny and Hot with Wind		

SOIL PROFILE - GRONDPROFIEL

DEPTH (mm)	PROFILE	DESCRIPTION	SAMPLE No.
0			
0-300 (300)		Sl. Moist, Dark reddish Brown, Medium Dense, Silty fine to medium grain SAND with minor building Rubble, Intact, Insitu (HCL+)(Phen-)	2553
300-1000+ (700+)		Sl. Moist, Dark yellowish Brown, Medium Dense, Silty fine to medium grain SAND, Intact, Insitu (HCL-)(Phen-)	2554

Surface Visual



Profile



Spoils





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Web: www.steynwilson.co.za

JOB No: SWL01227 **Ref. No:** - **Date:** 14 August 2018

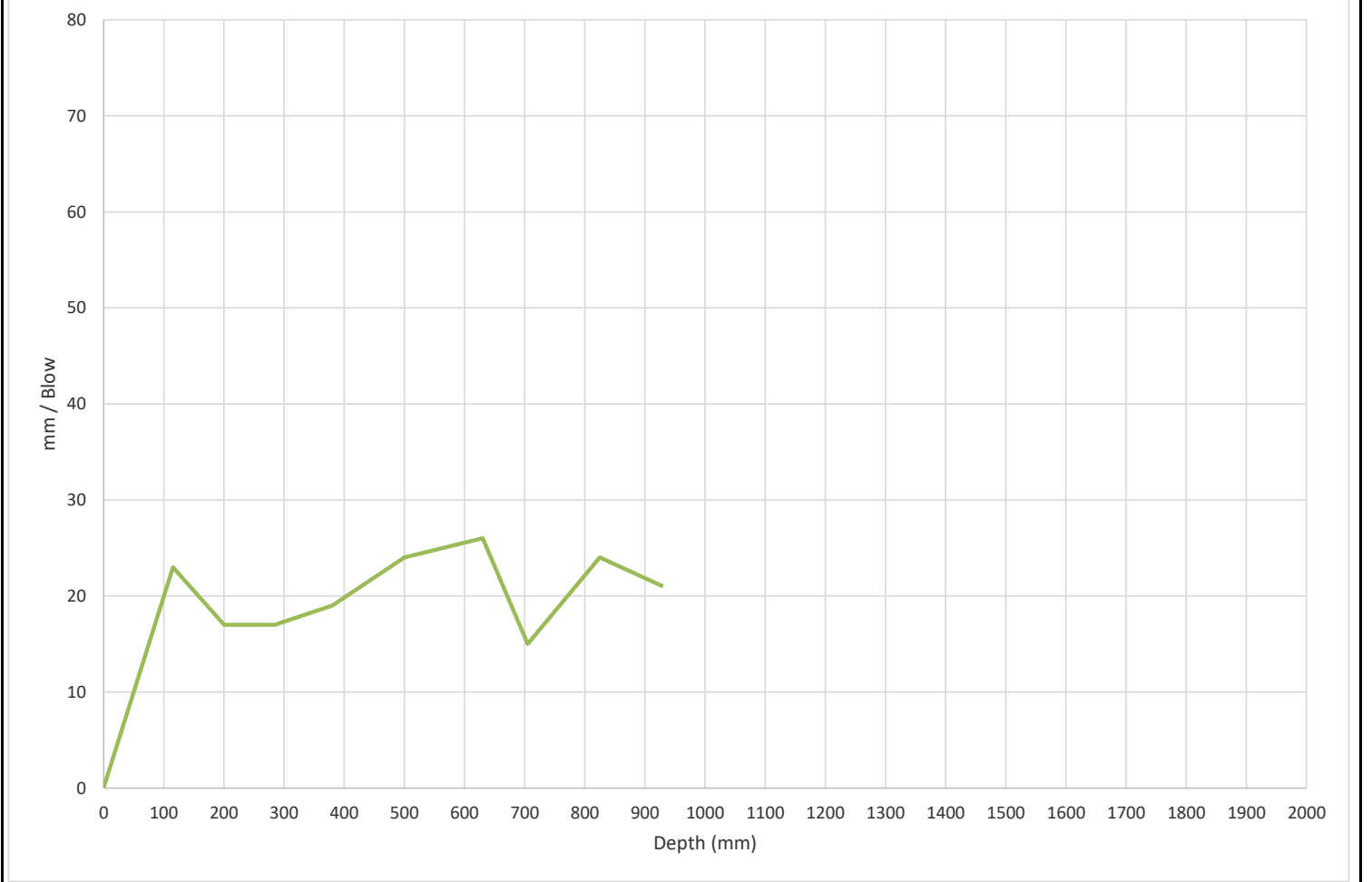
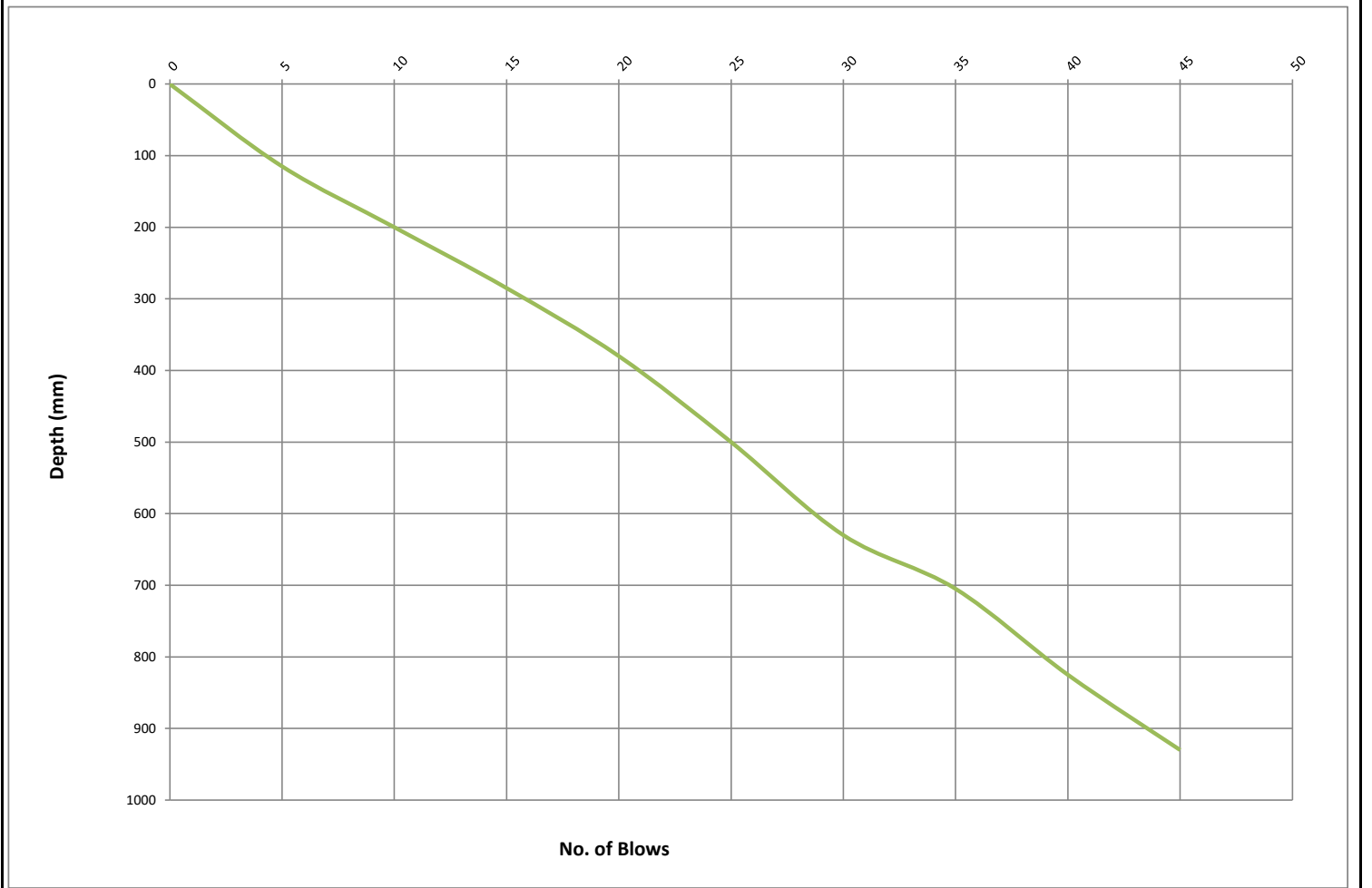
Client ITS Engineers
Carl Cronje Drive
Bellville
7530
Attention: Mr Wilhelm de Klerk

DYNAMIC CONE PENETROMETER TMH6 ST6

PROJECT:	Erica Rd	LEVEL:	1.0m Below NGL
TEST POSITION:	TP14	FOUNDATION:	-
TEST DEPTH:	1m	STARTING DEPTH:	165mm
MATERIAL TYPE:	Sandy Materials	Max. penetration depth:	930mm
CONSTRUCTION TYPE:	Road Construction	REFUSAL:	None
INSTRUMENT (DCP) SET No:	BT2-0003	NOB/TEST:	5

Number of Blows	Depth (mm)	Corrective Depth (mm)	Penetration Tempo	Structure Nr. (dn) mm/blow
0	165	0		
5	280	115	115	23
10	365	200	85	17
15	450	285	85	17
20	545	380	95	19
25	665	500	120	24
30	795	630	130	26
35	870	705	75	15
40	990	825	120	24
45	1095	930	105	21

GRAPHICAL REPRESENTATION / DYNAMIC CONE PENETROMETER TMH6 ST6



NOTE: All tests marked with (*) means that those test methods are not accredited.



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CIVIL ENGINEERING TESTING LABORATORIES

JOB NO: SWL01227 **Your Ref** - **Date** 14 August 2018

ITS Engineers
Carl Cronje Drive
Bellville
7530

PROJECT: Erica Rd

ATTENTION: Mr Wilhelm de Klerk

TMH5 MD1, MD2 / SANS 3001 GR1, PR5, GR10, GR12, GR30, GR40

The unambiguous description of the sample/s as received are as follows :

SAMPLE No.	2553	SPEC	2554	SPEC			
HOLE No. / SV. / CHAINAGE	TP14	G7	TP14	G8			
ROAD No. OR NAME	Erica Road		Erica Road				
LAYER TESTED / SAMPLED FROM	0,0 - 0,5m		0,5 - 1,0m				
DATE RECEIVED	25.07.18		25.07.18				
CLIENTS MARKING	None		None				
DESCRIPTION OF SAMPLE (COLOUR & TYPE)	Dark Reddish Brown Sand with Building Rubble		Dark Yellowish Brown Sand				
REDUCTION FACTOR / RF CHECK	0,0503		1,0000				
	0,14	< 1%	0,08	< 1%			
SIEVE ANALYSIS (mm) SANS 3001 GR1	100,0	100	100				
	75,0	100	100				
	63,0	99	100				
	53,0	98	100				
	37,5	96	100	-			
	28,0	94	100	-			
	20,0	92	100	-			
	14,0	91	100	-			
	5,00	84	100	-			
	2,00	78	100	-			
	0,425	52	-	42	-		
	0,075	5	-	1	-		
ATTERBERG LIMITS SANS 3001 GR10, GR12	LL%	NP	NP	≤ 7			
	P.I.	NP	NP	≤ 12			
	LS%	0.0	0.0	-			
	GM	1,65	2.7≥ GM ≥ 0.75	1,57	2.7≥ GM ≥ 0.75		
SOIL-MORTAR PERCENTAGES SANS 3001 PR5	Coarse sand	34	58				
	Fine sand	60	41				
	Coarse fine sand	26	25				
	Medium fine sand	24	12				
	Fine fine sand	10	5				
	Silt and clay	6	1				
	Coarse sand ratio	0,3		0,6			
MOD AASHTO SANS 3001 GR30	OMC%	9,2	9,2				
	MDD(KG/M ³)	1919	1728				
C.B.R. SANS 3001 GR40	COMP MC	8,9	8,8				
	% SWELL	0.0	1,50	0.0	1,50		
	100%	34	-	24	-		
	98%	28	-	19	-		
	97%	25	-	17	-		
	95%	20	-	13	-		
	93%	17	15	10	10		
90%	13	-	7	-			
Electrical Conductivity TMH1 A21T*							
pH Value TMH1 A20*							
REMARKS / NOTES							

NOTE: All tests marked with (*) means that those test methods are not accredited.

Erika Drive Test Pit 15 – Location: Open Field

Client: **ITS Engineers**
Project: Erica Rd
Attention: Mr Wilhelm de Klerk
Your Ref. No: -
Date Reported: Tuesday, 14 August 2018

TEST REPORT REFERENCE NUMBER / JOB NUMBER :

SWL01227

Dear Sir / Madam

Herewith please find the original reports pertaining to the above mentioned project.

Stake Value:

TP15

Test Requested

2x MDD / CBR /IND
1x 1m DCP

Site Sampling and Materials Information

Sampling Method: TMH5 Method MC1
Environmental Condition: Moderate

FINAL REPORT

We would like to take this opportunity to thank you for your valued support. Should you have any further enquiries please don't hesitate to contact me.

Yours Faithfully
STEYN-WILSON LABORATORIES (PTY) LTD

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Mr. R Wilson
Technical Signatory



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Email: admin@steynwilson.co.za

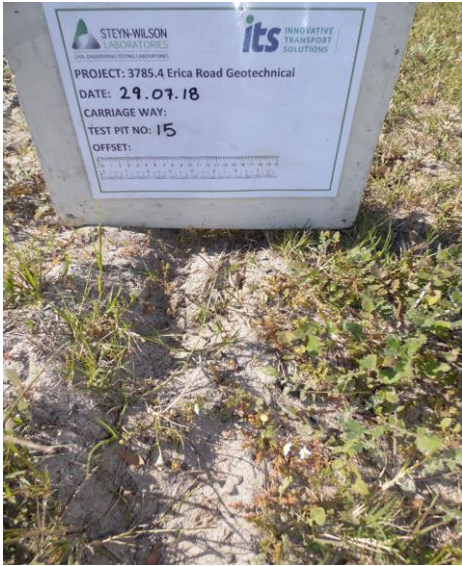
Web: www.steynwilson.co.za

JOB NO:	SWL01227	Ref.	-	DATE:	14-Aug-18
Client	ITS Engineers Carl Cronje Drive Bellville 7530	Project:	Erica Rd	Site / Road:	Erica Rd
Attention:	Mr Wilhelm de Klerk	Stake Value:	TP15	Test Hole No:	TP15
GPS / WGS84	3394310 01867799	Side Walls	Stable	Excavation Method	Pick & Shovel
Refusal		Water table	None	Refusal	None
Sampling Method	TMH5 Method MC1	Environmental Condition	Sunny and Hot with Wind	Water table	None

SOIL PROFILE - GRONDPROFIEL

DEPTH (mm)	PROFILE	DESCRIPTION	SAMPLE No.
0			
0-1000 (1000+)		Sl. Moist, Light Grey, Medium Dense, Silty fine to medium grain SAND, Intact, Insitu (HCL+)(Phen-)	2555

Surface Visual



Profile



Spoils





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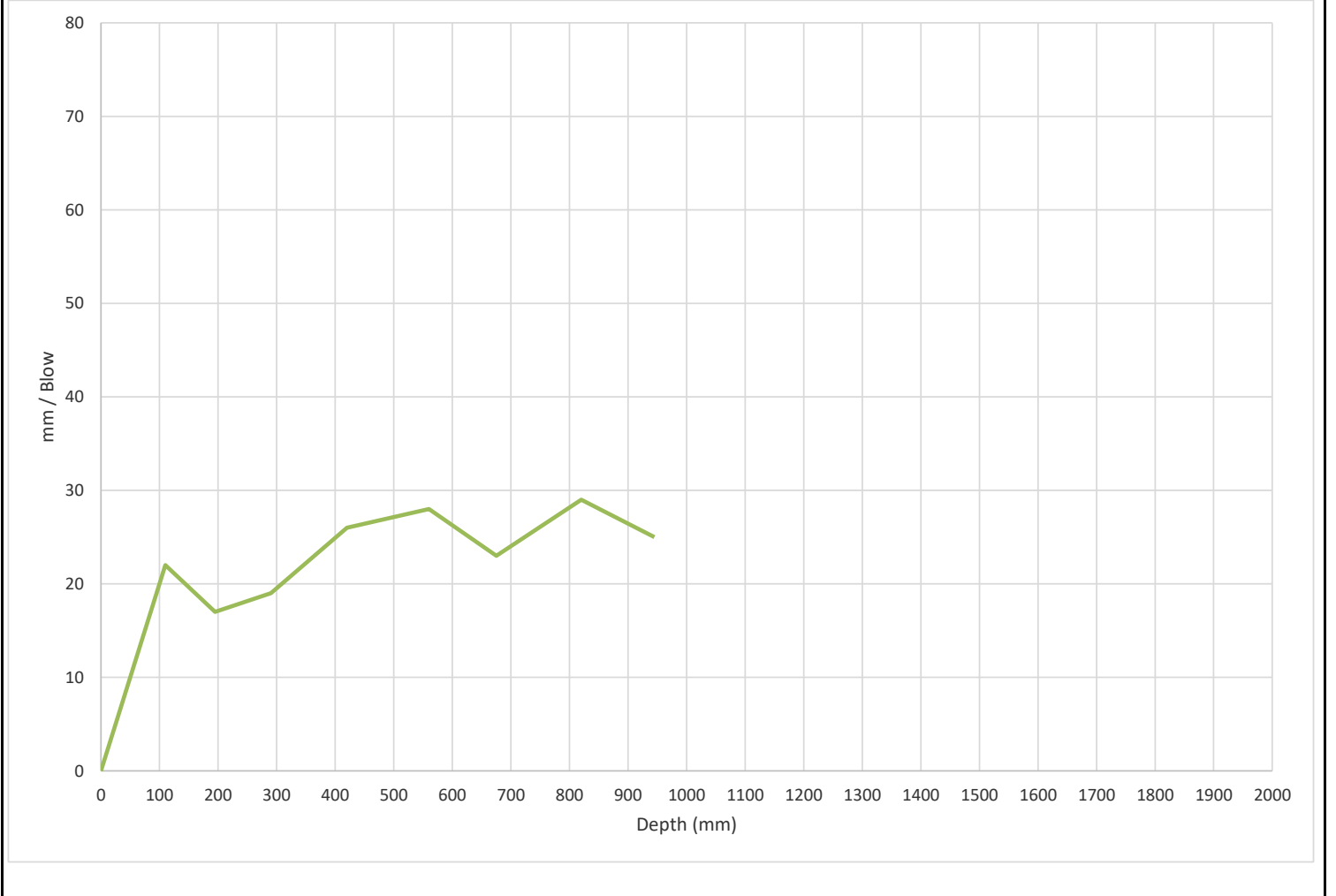
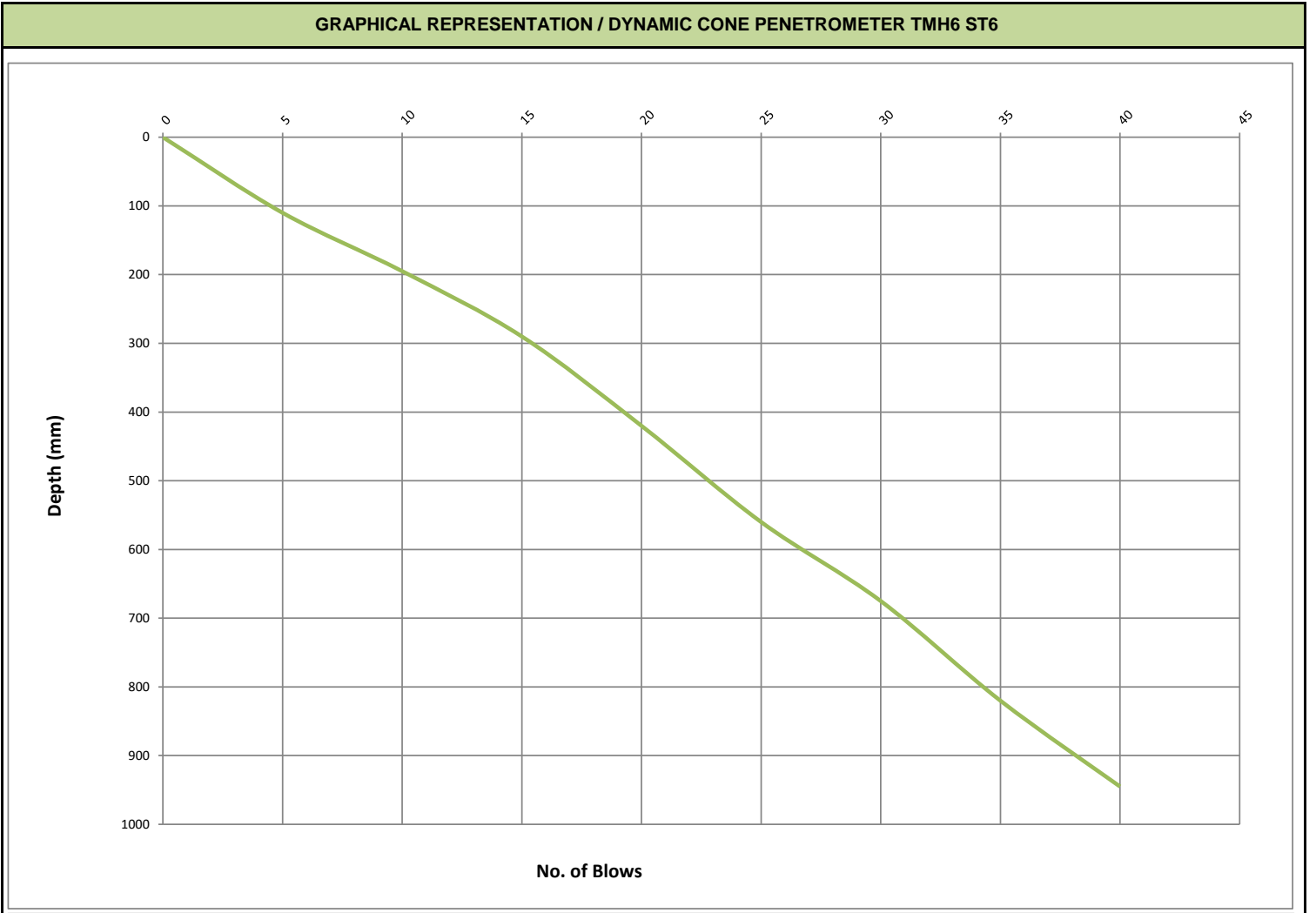
JOB No: SWL01227 **Ref. No:** - **Date:** 14 August 2018

Client ITS Engineers
Carl Cronje Drive
Bellville
7530
Attention: Mr Wilhelm de Klerk

DYNAMIC CONE PENETROMETER TMH6 ST6

PROJECT:	Erica Rd	LEVEL:	1.0m Below NGL
TEST POSITION:	TP15	FOUNDATION:	-
TEST DEPTH:	1m	STARTING DEPTH:	155mm
MATERIAL TYPE:	Sandy Materials	Max. penetration depth:	945mm
CONSTRUCTION TYPE:	Road Construction	REFUSAL:	None
INSTRUMENT (DCP) SET No:	BT2-0003	NOB/TEST:	5

Number of Blows	Depth (mm)	Corrective Depth (mm)	Penetration Tempo	Structure Nr. (dn) mm/blow
0	155	0		
5	265	110	110	22
10	350	195	85	17
15	445	290	95	19
20	575	420	130	26
25	715	560	140	28
30	830	675	115	23
35	975	820	145	29
40	1100	945	125	25



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CIVIL ENGINEERING TESTING LABORATORIES

JOB NO: SWL01227 **Your Ref** - **Date** 14 August 2018

ITS Engineers
Carl Cronje Drive
Bellville
7530

PROJECT: Erica Rd

ATTENTION: Mr Wilhelm de Klerk

TMH5 MD1, MD2 / SANS 3001 GR1, PR5, GR10, GR12, GR30, GR40

The unambiguous description of the sample/s as received are as follows :

SAMPLE No.	2555 A	SPEC	2555 B	SPEC		
HOLE No. / SV. / CHAINAGE	TP15	G9	TP15	G9		
ROAD No. OR NAME	Erica Road		Erica Road			
LAYER TESTED / SAMPLED FROM	0,0 - 0,5m		0,5 - 1,0m			
DATE RECEIVED	28.07.18		28.07.18			
CLIENTS MARKING	None		None			
DESCRIPTION OF SAMPLE (COLOUR & TYPE)	Light Grey Sand		Light Grey Sand			
REDUCTION FACTOR / RF CHECK	1,0000 0,08	< 1%	1,0000 0,31	< 1%		
SIEVE ANALYSIS (mm) SANS 3001 GR1	100,0	100	100			
	75,0	100	100			
	63,0	100	100			
	53,0	100	100			
	37,5	100	100	-	-	
	28,0	100	100	-	-	
	20,0	100	100	-	-	
	14,0	99	100	-	-	
	5,00	98	98	-	-	
	2,00	97	94	-	-	
	0,425	67	65	-	-	
	0,075	1	4	-	-	
ATTERBERG LIMITS SANS 3001 GR10, GR12	LL%	NP	≤ 7	NP	≤ 7	
	P.I.	NP	≤ 12	NP	≤ 12	
	LS%	0.0	-	0.0	-	
	GM	1,35	2.7≥ GM ≥ 0.75	1,38	2.7≥ GM ≥ 0.75	
SOIL-MORTAR PERCENTAGES SANS 3001 PR5	Coarse sand	31		30		
	Fine sand	69		66		
	Coarse fine sand	40		36		
	Medium fine sand	22		25		
	Fine fine sand	6		6		
	Silt and clay	1		4		
	Coarse sand ratio	0,3		0,3		
MOD AASHTO SANS 3001 GR30	OMC%	9,4		9,7		
	MDD(KG/M ³)	1721		1738		
C.B.R. SANS 3001 GR40	COMP MC	9,1		9,5		
	% SWELL	0.0	1,50	0.0	1,50	
	100%	14	-	18	-	
	98%	12	-	15	-	
	97%	11	-	14	-	
	95%	9	-	12	-	
	93%	8	7	9	7	
90%	7	-	7	-		
Electrical Conductivity TMH1 A21T*						
pH Value TMH1 A20*						
REMARKS / NOTES						

NOTE: All tests marked with (*) means that those test methods are not accredited.

Erika Drive Test Pit 16 – Location: Open Field

Client: **ITS Engineers**
Project: Erica Rd
Attention: Mr Wilhelm de Klerk
Your Ref. No: -
Date Reported: Tuesday, 14 August 2018

TEST REPORT REFERENCE NUMBER / JOB NUMBER :

SWL01227

Dear Sir / Madam

Herewith please find the original reports pertaining to the above mentioned project.

Stake Value:

TP16

Test Requested

2x MDD / CBR /IND
1x 1m DCP

Site Sampling and Materials Information

Sampling Method: TMH5 Method MC1
Environmental Condition: Moderate

FINAL REPORT

We would like to take this opportunity to thank you for your valued support. Should you have any further enquiries please don't hesitate to contact me.

Yours Faithfully
STEYN-WILSON LABORATORIES (PTY) LTD

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Mr. R Wilson
Technical Signatory

DIRECTORS: Mr. J. Steyn ND-Civil (Managing) | Mr. R. Wilson B-Tech Civil (Operations)
FINANCIAL MANAGER: Mr. D. Erasmus (SAICA Reg No: 200522562)
LABORATORY MANAGER: Mr. K. Booysen





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Web: www.steynwilson.co.za

JOB NO: SWL01227 **Ref.:** - **DATE:** 14-Aug-18

Client	ITS Engineers	Project:	Erica Rd
	Carl Cronje Drive	Site / Road:	Erica Rd
	Bellville	Stake Value:	TP16
	7530	Test Hole No:	TP16
Attention:	Mr Wilhelm de Klerk	Side Walls	Stable
GPS / WGS84	3394310 01867799	Excavation Method	Pick & Shovel
Sampling Method	TMH5 Method MC1	Refusal	None
		Water table	None
		Enviromental Condition	Sunny and Hot with Wind

SOIL PROFILE - GRONDPROFIEL

DEPTH (mm)	PROFILE	DESCRIPTION	SAMPLE No.
0			
0-1000 (1000+)		Sl. Moist, Light Grey, Medium Dense, Silty fine to medium grain SAND, Intact, Insitu (HCL+)(Phen-)	2556

Surface Visual

Profile



Spoils





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JOB No: SWL01227 **Ref. No:** - **Date:** 14 August 2018

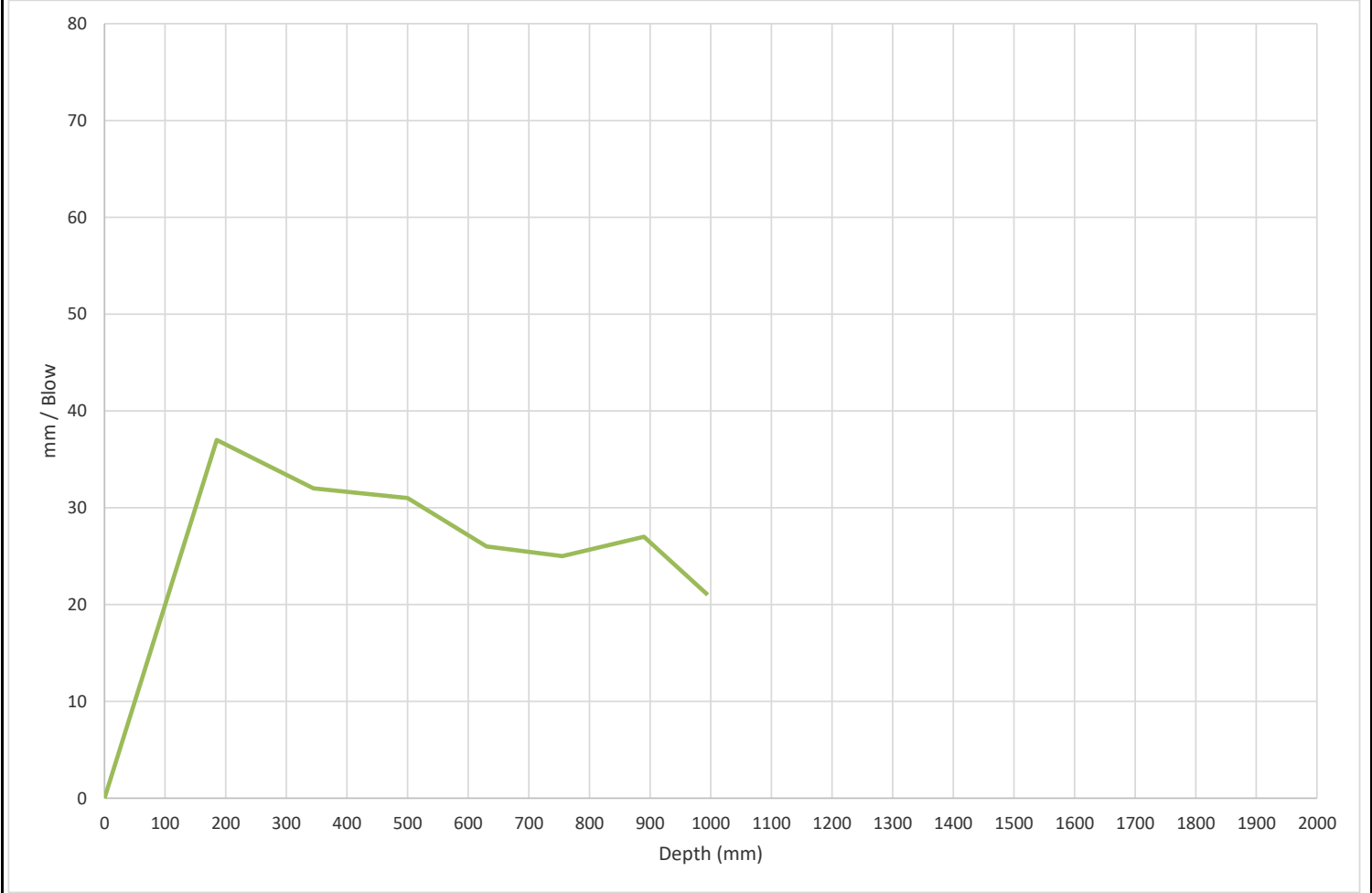
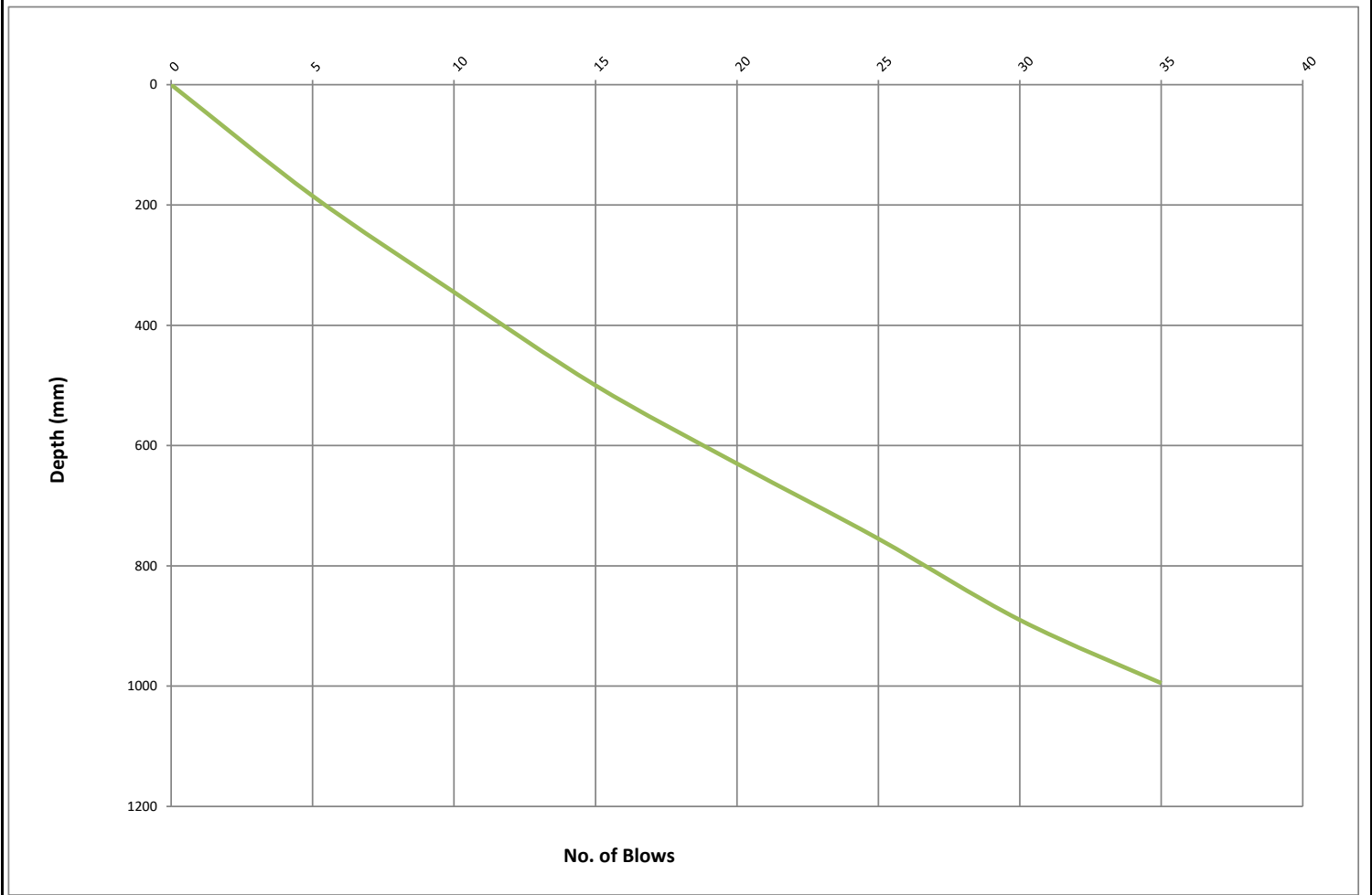
Client ITS Engineers
Carl Cronje Drive
Bellville
7530
Attention: Mr Wilhelm de Klerk

DYNAMIC CONE PENETROMETER TMH6 ST6

PROJECT:	Erica Rd	LEVEL:	1.0m Below NGL
TEST POSITION:	TP16	FOUNDATION:	-
TEST DEPTH:	1m	STARTING DEPTH:	95mm
MATERIAL TYPE:	Sandy Materials	Max. penetration depth:	995mm
CONSTRUCTION TYPE:	Road Construction	REFUSAL:	None
INSTRUMENT (DCP) SET No:	BT2-0003	NOB/TEST:	5

Number of Blows	Depth (mm)	Corrective Depth (mm)	Penetration Tempo	Structure Nr. (dn) mm/blow
0	95	0		
5	280	185	185	37
10	440	345	160	32
15	595	500	155	31
20	725	630	130	26
25	850	755	125	25
30	985	890	135	27
35	1090	995	105	21

GRAPHICAL REPRESENTATION / DYNAMIC CONE PENETROMETER TMH6 ST6



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Web: www.steynwilson.co.za

CIVIL ENGINEERING TESTING LABORATORIES

JOB NO: SWL01227 **Your Ref** - **Date** 14 August 2018

ITS Engineers
Carl Cronje Drive
Bellville
7530

PROJECT: Erica Rd

ATTENTION: Mr Wilhelm de Klerk

TMH5 MD1, MD2 / SANS 3001 GR1, PR5, GR10, GR12, GR30, GR40

The unambiguous description of the sample/s as received are as follows :

SAMPLE No.	2556 A	SPEC	2556 B	SPEC		
HOLE No. / SV. / CHAINAGE	TP16		TP16			
ROAD No. OR NAME	Erica Road		Erica Road			
LAYER TESTED / SAMPLED FROM	0,0 - 0,5m		0,5 - 1,0m			
DATE RECEIVED	28.07.18		28.07.18			
CLIENTS MARKING	None	G9	None	G8		
DESCRIPTION OF SAMPLE (COLOUR & TYPE)	Light Grey Sand		Light Grey Sand			
REDUCTION FACTOR / RF CHECK	1,0000		1,0000			
		< 1%	0,48	< 1%		
SIEVE ANALYSIS (mm) SANS 3001 GR1	100,0	100	100			
	75,0	100	100			
	63,0	100	100			
	53,0	100	100			
	37,5	100	100	-	-	
	28,0	100	100	-	-	
	20,0	100	100	-	-	
	14,0	100	100	-	-	
	5,00	100	100	-	-	
	2,00	100	100	98	-	
	0,425	80	100	81	-	
	0,075	1	100	4	-	
ATTERBERG LIMITS SANS 3001 GR10, GR12	LL%	NP	NP	≤ 7		
	P.I.	NP	NP	≤ 12		
	LS%	0.0	0.0	-	-	
	GM	1,19	1,17	2.7≥ GM ≥ 0.75	2.7≥ GM ≥ 0.75	
SOIL-MORTAR PERCENTAGES SANS 3001 PR5	Coarse sand	20	17			
	Fine sand	79	79			
	Coarse fine sand	40	35			
	Medium fine sand	30	36			
	Fine fine sand	10	8			
	Silt and clay	1	4			
	Coarse sand ratio	0,2	0,2			
MOD AASHTO SANS 3001 GR30	OMC%	10,1	10,3			
	MDD(KG/M ³)	1724	1705			
C.B.R. SANS 3001 GR40	COMP MC	9,8	10,1			
	% SWELL	0.0	0.0	1,50	1,50	
	100%	15	18	-	-	
	98%	14	15	-	-	
	97%	12	14	-	-	
	95%	11	13	-	-	
	93%	9	11	7	10	
	90%	7	8	-	-	
Electrical Conductivity TMH1 A21T*						
pH Value TMH1 A20*						
REMARKS / NOTES						

NOTE: All tests marked with (*) means that those test methods are not accredited.

Erika Drive Test Pit 17 – Location: Open Field

Client: **ITS Engineers**
Project: Erica Rd
Attention: Mr Wilhelm de Klerk
Your Ref. No: -
Date Reported: Tuesday, 14 August 2018

TEST REPORT REFERENCE NUMBER / JOB NUMBER :

SWL01227

Dear Sir / Madam

Herewith please find the original reports pertaining to the above mentioned project.

Stake Value:

TP17

Test Requested

2x MDD / CBR /IND
1x 1m DCP

Site Sampling and Materials Information

Sampling Method: TMH5 Method MC1
Environmental Condition: Moderate

FINAL REPORT

We would like to take this opportunity to thank you for your valued support. Should you have any further enquiries please don't hesitate to contact me.

Yours Faithfully
STEYN-WILSON LABORATORIES (PTY) LTD

Remarks:

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- The results reported relate only to the sample tested, Further use of the attached information is not the responsibility or liability of STEYN-WILSON LABORATORIES (PTY) LTD.
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- Should there be any deviation from the prescribed test method comments will be made thereof, pertaining to the test on the relevant materials report.



Mr. R Wilson
Technical Signatory



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CIVIL ENGINEERING TESTING LABORATORIES

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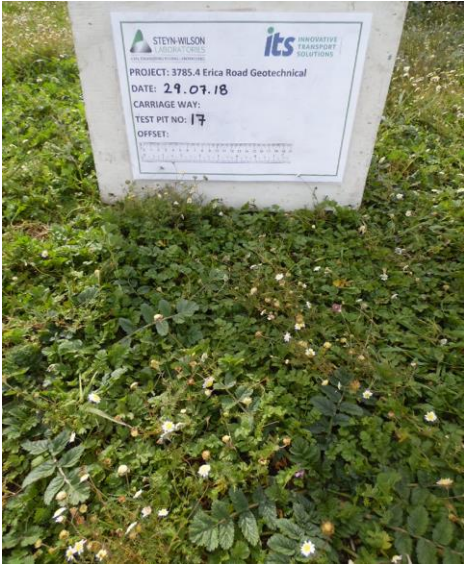
JOB NO: SWL01227 **Ref.:** - **DATE:** 14-Aug-18

Client	ITS Engineers	Project:	Erica Rd
	Carl Cronje Drive	Site / Road:	Erica Rd
	Bellville	Stake Value:	TP17
	7530	Test Hole No:	TP17
Attention:	Mr Wilhelm de Klerk	Side Walls	Stable
GPS / WGS84	3394523 01868132	Excavation Method	Pick & Shovel
Refusal		Water table	None
Sampling Method	TMH5 Method MC1	Enviromental Condition	Sunny and Hot with Wind

SOIL PROFILE - GRONDPROFIEL

DEPTH (mm)	PROFILE	DESCRIPTION	SAMPLE No.
0			
0-420 (420)		Sl. Moist, Light Brown, Medium Dense, Silty fine to medium grain SAND with minor Pebbles, Intact, Insitu (HCL-)(Phen-)	2557
420-1000+ (580+)		Sl. Moist, Light Grey, Medium Dense, Silty fine to medium grain SAND, Intact, Insitu (HCL-)(Phen-)	2558

Surface Visual



Profile



Spoils





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JOB No: SWL01227 **Ref. No:** - **Date:** 14 August 2018

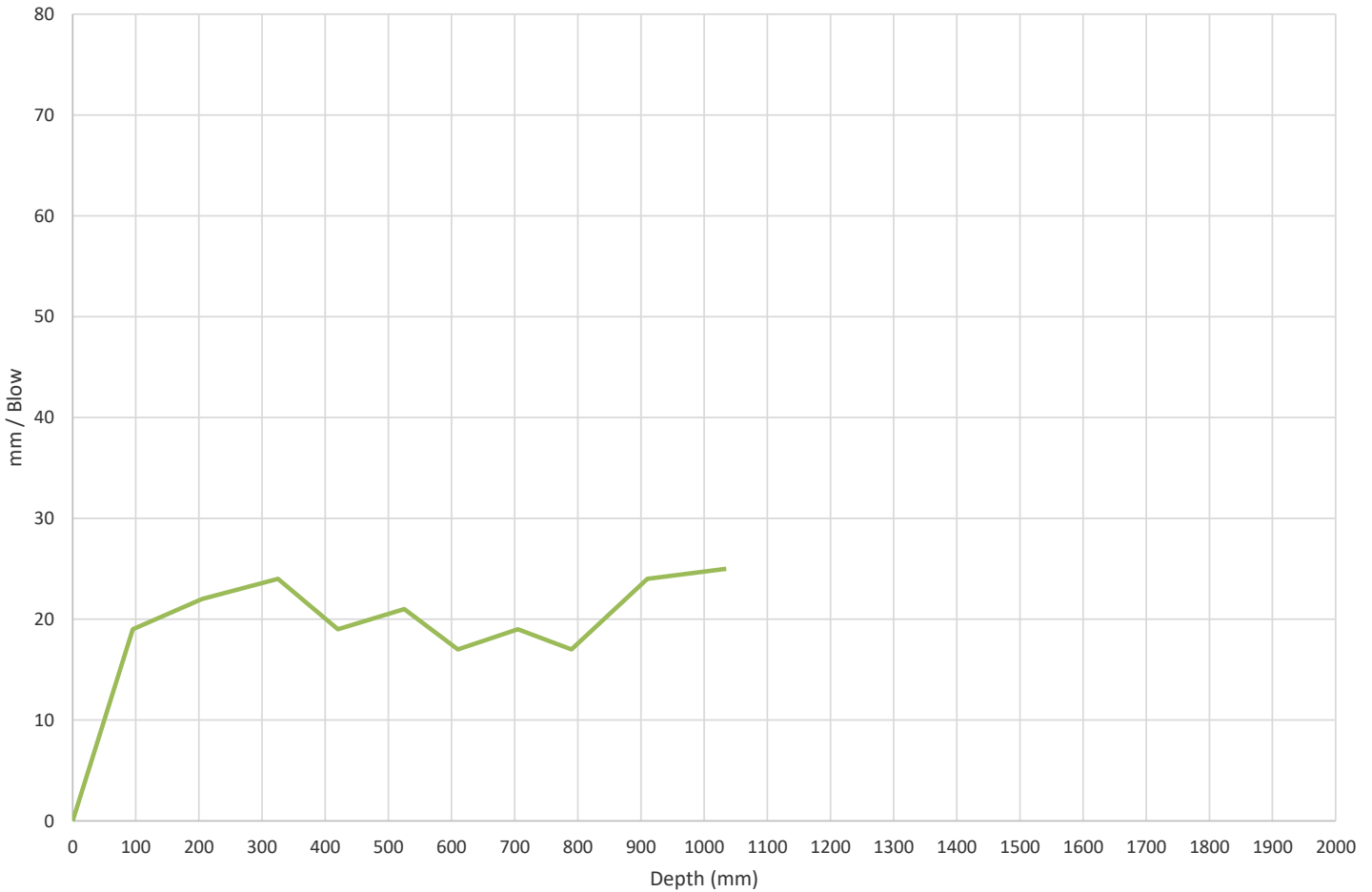
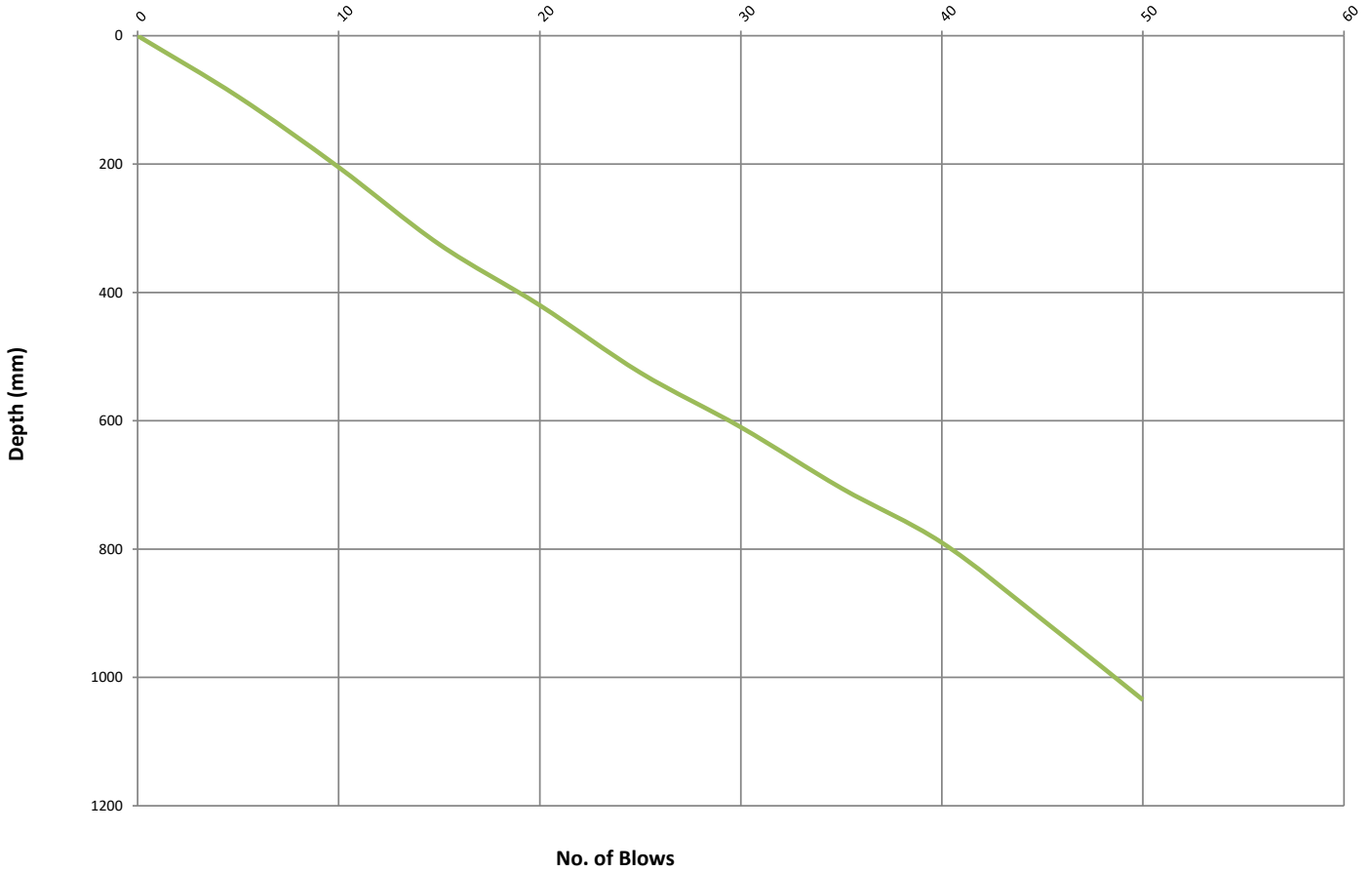
Client ITS Engineers
Carl Cronje Drive
Bellville
7530
Attention: Mr Wilhelm de Klerk

DYNAMIC CONE PENETROMETER TMH6 ST6

PROJECT:	Erica Rd	LEVEL:	1.0m Below NGL
TEST POSITION:	TP17	FOUNDATION:	-
TEST DEPTH:	1m	STARTING DEPTH:	80mm
MATERIAL TYPE:	Sandy Materials	Max. penetration depth:	1035mm
CONSTRUCTION TYPE:	Road Construction	REFUSAL:	None
INSTRUMENT (DCP) SET No:	BT2-0003	NOB/TEST:	5

Number of Blows	Depth (mm)	Corrective Depth (mm)	Penetration Tempo	Structure Nr. (dn) mm/blow
0	80	0		
5	175	95	95	19
10	285	205	110	22
15	405	325	120	24
20	500	420	95	19
25	605	525	105	21
30	690	610	85	17
35	785	705	95	19
40	870	790	85	17
45	990	910	120	24
50	1115	1035	125	25

GRAPHICAL REPRESENTATION / DYNAMIC CONE PENETROMETER TMH6 ST6



NOTE: All tests marked with (*) means that those test methods are not accredited.



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CIVIL ENGINEERING TESTING LABORATORIES

JOB NO: SWL01227 **Your Ref** - **Date** 14 August 2018

ITS Engineers
Carl Cronje Drive
Bellville
7530

PROJECT: Erica Rd

ATTENTION: Mr Wilhelm de Klerk

TMH5 MD1, MD2 / SANS 3001 GR1, PR5, GR10, GR12, GR30, GR40

The unambiguous description of the sample/s as received are as follows :

SAMPLE No.	2557	SPEC	2558	SPEC		
HOLE No. / SV. / CHAINAGE	TP17	G6	TP17	G8		
ROAD No. OR NAME	Erica Road		Erica Road			
LAYER TESTED / SAMPLED FROM	0,0 - 0,5m		0,5 - 1,0m			
DATE RECEIVED	29.07.18		29.07.18			
CLIENTS MARKING	None		None			
DESCRIPTION OF SAMPLE (COLOUR & TYPE)	Light Brown Sand		Light Grey Sand			
REDUCTION FACTOR / RF CHECK	0,0341		1,0000			
	0,13	< 1%	0,14	< 1%		
SIEVE ANALYSIS (mm) SANS 3001 GR1	100,0	100	100			
	75,0	100	100			
	63,0	100	100			
	53,0	100	100			
	37,5	100	100			
	28,0	98	100	-		
	20,0	97	100	-		
	14,0	96	100	-		
	5,00	91	100	-		
	2,00	77	96	-		
	0,425	57	73	-		
	0,075	7	2	-		
ATTERBERG LIMITS SANS 3001 GR10, GR12	LL%	NP	NP	≤ 7		
	P.I.	NP	NP	≤ 12		
	LS%	0.0	0.0	-		
	GM	1,59	2.6≥ GM ≥ 1.2	1,30	2.7≥ GM ≥ 0.75	
SOIL-MORTAR PERCENTAGES SANS 3001 PR5	Coarse sand	27	24			
	Fine sand	65	74			
	Coarse fine sand	30	36			
	Medium fine sand	26	28			
	Fine fine sand	9	10			
	Silt and clay	9	2			
	Coarse sand ratio	0,3	0,2			
MOD AASHTO SANS 3001 GR30	OMC%	7,2	8,8			
	MDD(KG/M ³)	2116	1843			
C.B.R. SANS 3001 GR40	COMP MC	6,9	8,5			
	% SWELL	0.0	1,00	0.0	1,50	
	100%	52	-	17	-	
	98%	45	-	15	-	
	97%	43	-	14	-	
	95%	38	25	12	-	
	93%	32	-	10	10	
90%	26	-	8	-		
Electrical Conductivity TMH1 A21T*						
pH Value TMH1 A20*						
REMARKS / NOTES						

NOTE: All tests marked with (*) means that those test methods are not accredited.

Erika Drive Test Pit 18 – Location: Open Field

Client: **ITS Engineers**
Project: Erica Rd
Attention: Mr Wilhelm de Klerk
Your Ref. No: -
Date Reported: Tuesday, 14 August 2018

TEST REPORT REFERENCE NUMBER / JOB NUMBER :

SWL01227

Dear Sir / Madam

Herewith please find the original reports pertaining to the above mentioned project.

Stake Value:

TP18

Test Requested

2x MDD / CBR /IND
1x 1m DCP

Site Sampling and Materials Information

Sampling Method: TMH5 Method MC1
Environmental Condition: Moderate

FINAL REPORT

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Yours Faithfully
STEYN-WILSON LABORATORIES (PTY) LTD

Remarks:

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4. The results reported relate only to the sample tested, Further use of the attached information is not the responsibility or liability of STEYN-WILSON LABORATORIES (PTY) LTD.
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Mr. R Wilson
Technical Signatory



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Email: admin@steynwilson.co.za

Web: www.steynwilson.co.za

JOB NO: SWL01227 **Ref.** - **DATE:** 14-Aug-18

Client	ITS Engineers	Project:	Erica Rd
	Carl Cronje Drive	Site / Road:	Erica Rd
	Bellville	Stake Value:	TP18
	7530	Test Hole No:	TP18
		Side Walls	Stable
Attention:	Mr Wilhelm de Klerk	Excavation Method	Pick & Shovel
GPS / WGS84	3394673 01868545	Refusal	None
		Water table	None
Sampling Method	TMH5 Method MC1	Enviromental Condition	Sunny and Hot with Wind

SOIL PROFILE - GRONDPROFIEL

DEPTH (mm)	PROFILE	DESCRIPTION	SAMPLE No.
0			
0-250 (250)		Sl. Moist, Dark Grey, Medium Dense, Silty fine to medium grain SAND, Intact, Insitu (HCL-)(Phen-)	2559
250-650+ (400+)		Sl. Moist, Light Brown, Medium Dense, Silty fine to medium grain SAND, Intact, Insitu (HCL-)(Phen-) Water Table : 0,65m	2560

Surface Visual

Profile



Spoils





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Web: www.steynwilson.co.za

JOB No: SWL01227 **Ref. No:** - **Date:** 14 August 2018

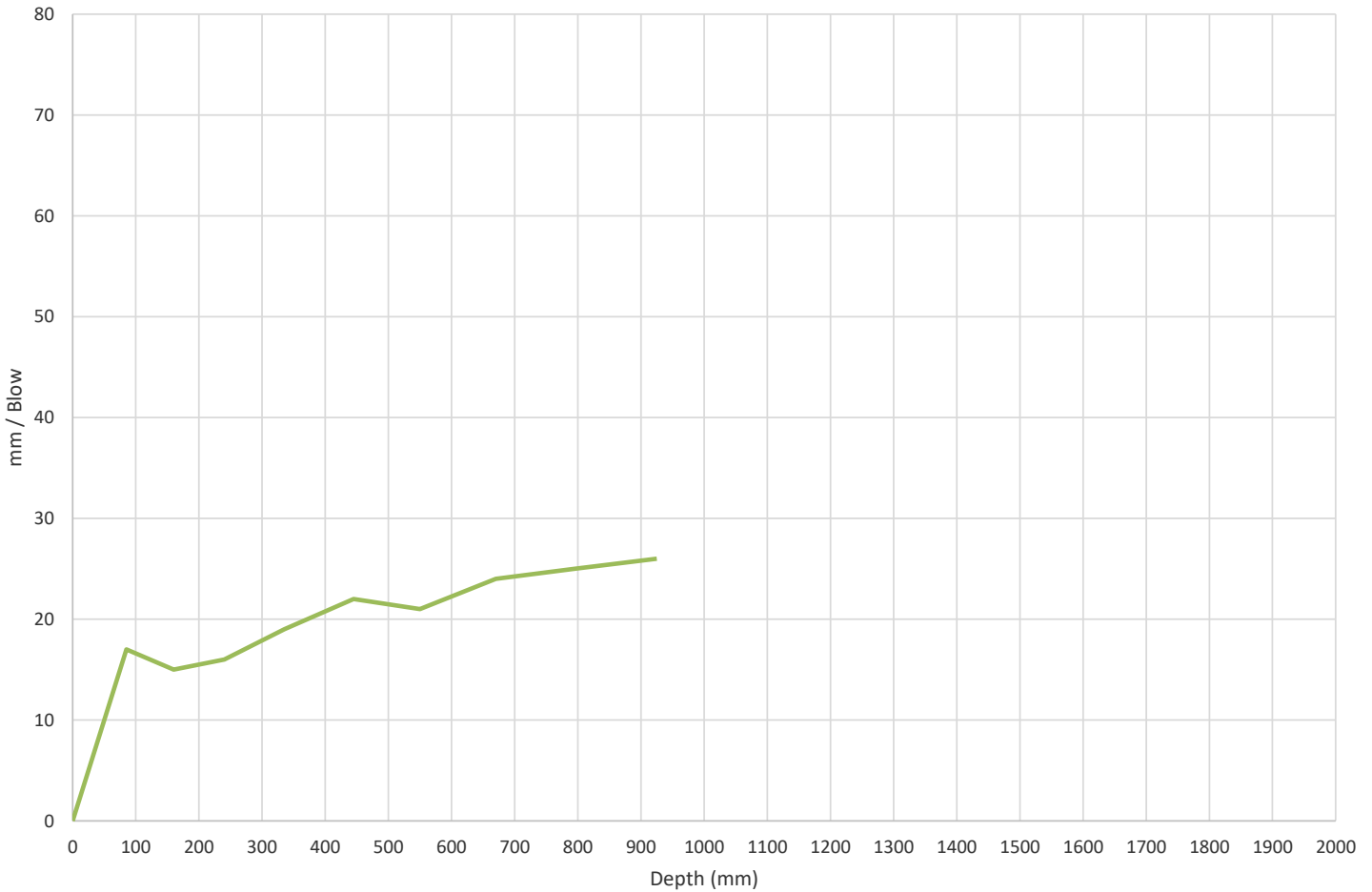
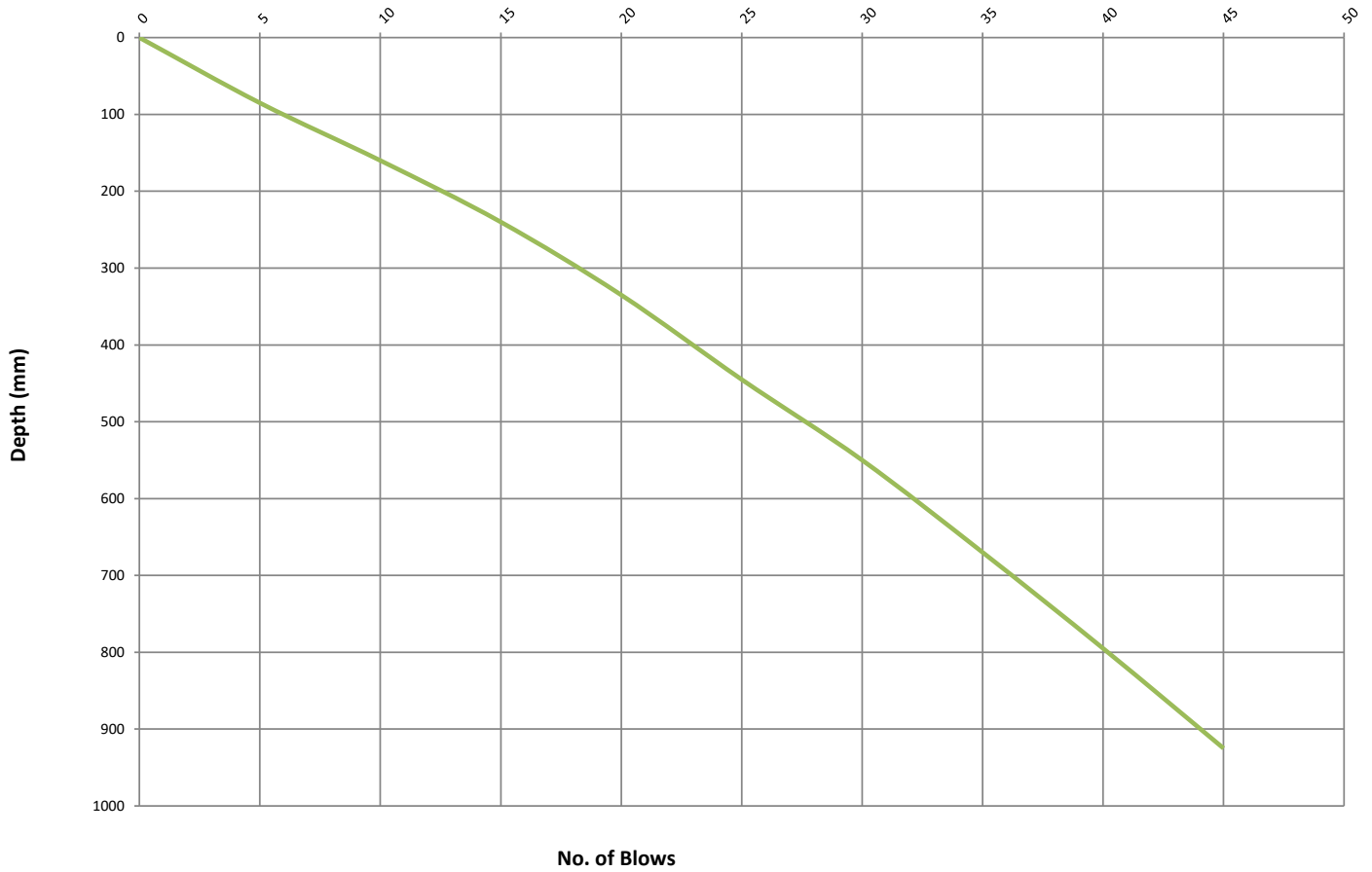
Client ITS Engineers
Carl Cronje Drive
Bellville
7530
Attention: Mr Wilhelm de Klerk

DYNAMIC CONE PENETROMETER TMH6 ST6

PROJECT:	Erica Rd	LEVEL:	1.0m Below NGL
TEST POSITION:	TP18	FOUNDATION:	-
TEST DEPTH:	1m	STARTING DEPTH:	145mm
MATERIAL TYPE:	Sandy Materials	Max. penetration depth:	925mm
CONSTRUCTION TYPE:	Road Construction	REFUSAL:	None
INSTRUMENT (DCP) SET No:	BT2-0003	NOB/TEST:	5

Number of Blows	Depth (mm)	Corrective Depth (mm)	Penetration Tempo	Structure Nr. (dn) mm/blow
0	145	0		
5	230	85	85	17
10	305	160	75	15
15	385	240	80	16
20	480	335	95	19
25	590	445	110	22
30	695	550	105	21
35	815	670	120	24
40	940	795	125	25
45	1070	925	130	26

GRAPHICAL REPRESENTATION / DYNAMIC CONE PENETROMETER TMH6 ST6



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CIVIL ENGINEERING TESTING LABORATORIES

JOB NO: SWL01227 **Your Ref** - **Date** 14 August 2018

ITS Engineers
Carl Cronje Drive
Bellville
7530

PROJECT: Erica Rd

ATTENTION: Mr Wilhelm de Klerk

TMH5 MD1, MD2 / SANS 3001 GR1, PR5, GR10, GR12, GR30, GR40

The unambiguous description of the sample/s as received are as follows :

SAMPLE No.	2559	SPEC	2560	SPEC			
HOLE No. / SV. / CHAINAGE	TP18	G9	TP18	G8			
ROAD No. OR NAME	Erica Road		Erica Road				
LAYER TESTED / SAMPLED FROM	0,0 - 0,5m		0,5 - 1,0m				
DATE RECEIVED	29.07.18		29.07.18				
CLIENTS MARKING	None		None				
DESCRIPTION OF SAMPLE (COLOUR & TYPE)	Dark Grey Sand		Light Brown Sand				
REDUCTION FACTOR / RF CHECK	1,0000		1,0000				
	0,11	< 1%	0,07	< 1%			
SIEVE ANALYSIS (mm) SANS 3001 GR1	100,0	100	100				
	75,0	100	100				
	63,0	100	100				
	53,0	100	100				
	37,5	100	100	-			
	28,0	100	100	-			
	20,0	100	100	-			
	14,0	100	100	-			
	5,00	100	100	-			
	2,00	100	100	-			
	0,425	80	-	78	-		
	0,075	4	-	3	-		
ATTERBERG LIMITS SANS 3001 GR10, GR12	LL%	NP	≤ 7	NP	≤ 7		
	P.I.	NP	≤ 12	NP	≤ 12		
	LS%	0.0	-	0.0	-		
	GM	1,16	2.7≥ GM ≥ 0.75	1,19	2.7≥ GM ≥ 0.75		
SOIL-MORTAR PERCENTAGES SANS 3001 PR5	Coarse sand	20		22			
	Fine sand	76		75			
	Coarse fine sand	41		39			
	Medium fine sand	26		27			
	Fine fine sand	10		9			
	Silt and clay	4		3			
	Coarse sand ratio	0,2		0,2			
MOD AASHTO SANS 3001 GR30	OMC%	9,0		9,4			
	MDD(KG/M ³)	1764		1751			
C.B.R. SANS 3001 GR40	COMP MC	8,7		9,1			
	% SWELL	0.0	1,50	0.0	1,50		
	100%	14	-	20	-		
	98%	12	-	17	-		
	97%	11	-	15	-		
	95%	9	-	13	-		
	93%	8	7	11	10		
90%	6	-	8	-			
Electrical Conductivity TMH1 A21T*							
pH Value TMH1 A20*							
REMARKS / NOTES							

NOTE: All tests marked with (*) means that those test methods are not accredited.

Erika Drive Test Pit 19 – Location: Open Field

Client: **ITS Engineers**
Project: Erica Rd
Attention: Mr Wilhelm de Klerk
Your Ref. No: -
Date Reported: Tuesday, 14 August 2018

TEST REPORT REFERENCE NUMBER / JOB NUMBER :

SWL01227

Dear Sir / Madam

Herewith please find the original reports pertaining to the above mentioned project.

Stake Value:

TP19

Test Requested

2x MDD / CBR /IND
1x 1m DCP

Site Sampling and Materials Information

Sampling Method: TMH5 Method MC1
Environmental Condition: Moderate

FINAL REPORT

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Yours Faithfully
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Mr. R Wilson
Technical Signatory



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Web: www.steynwilson.co.za

JOB NO:	SWL01227	Ref.	-	DATE:	14-Aug-18
Client	ITS Engineers Carl Cronje Drive Bellville 7530	Project:	Erica Rd	Site / Road:	Erica Rd
Attention:	Mr Wilhelm de Klerk	Stake Value:	TP19	Test Hole No:	TP19
GPS / WGS84	3394823 01868366	Side Walls	Stable	Excavation Method	Pick & Shovel
Refusal		Water table	None	Refusal	None
Sampling Method	TMH5 Method MC1	Environmental Condition	Sunny and Hot with Wind	Water table	None

SOIL PROFILE - GRONDPROFIEL

DEPTH (mm)	PROFILE	DESCRIPTION	SAMPLE No.
0			
0-1000 (1000+)		Sl. Moist, Light Grey, Medium Dense, Silty fine to medium grain SAND, Intact, Insitu (HCL-)(Phen-)	2561

Surface Visual

Profile



Spoils





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JOB No: SWL01227 **Ref. No:** - **Date:** 14 August 2018

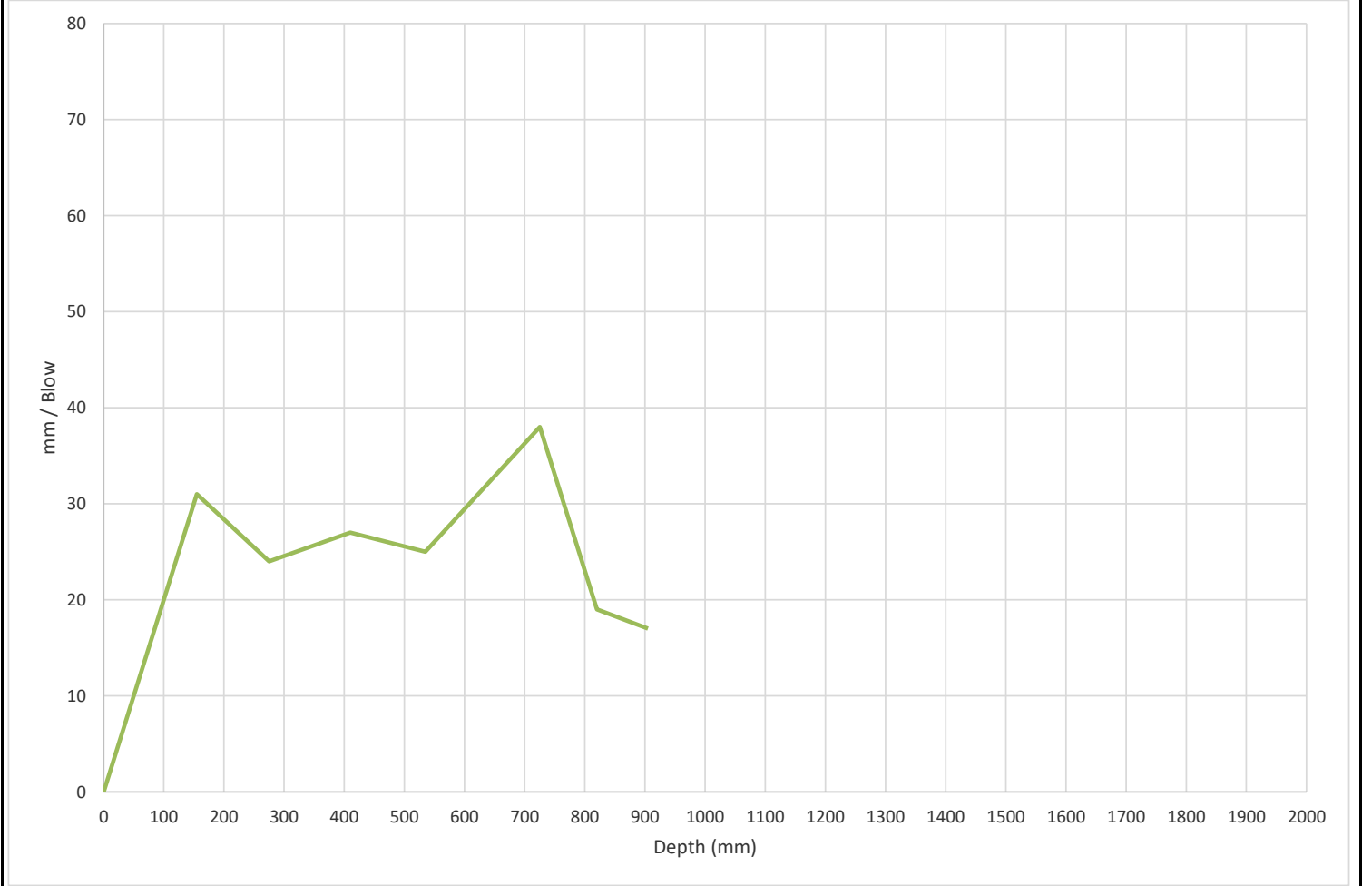
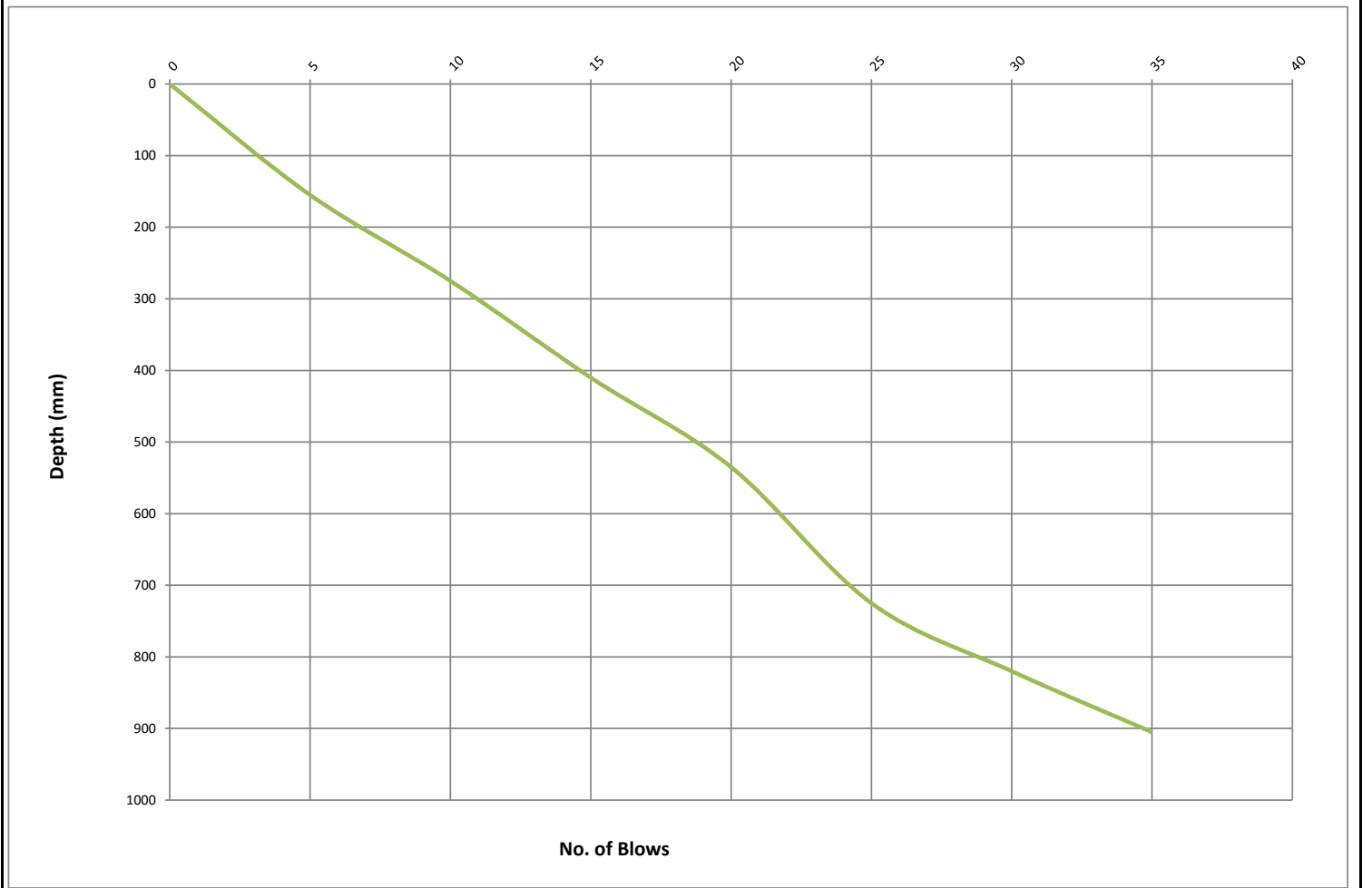
Client ITS Engineers
Carl Cronje Drive
Bellville
7530
Attention: Mr Wilhelm de Klerk

DYNAMIC CONE PENETROMETER TMH6 ST6

PROJECT:	Erica Rd	LEVEL:	1.0m Below NGL
TEST POSITION:	TP19	FOUNDATION:	-
TEST DEPTH:	1m	STARTING DEPTH:	170mm
MATERIAL TYPE:	Sandy Materials	Max. penetration depth:	905mm
CONSTRUCTION TYPE:	Road Construction	REFUSAL:	None
INSTRUMENT (DCP) SET No:	BT2-0003	NOB/TEST:	5

Number of Blows	Depth (mm)	Corrective Depth (mm)	Penetration Tempo	Structure Nr. (dn) mm/blow
0	170	0		
5	325	155	155	31
10	445	275	120	24
15	580	410	135	27
20	705	535	125	25
25	895	725	190	38
30	990	820	95	19
35	1075	905	85	17

GRAPHICAL REPRESENTATION / DYNAMIC CONE PENETROMETER TMH6 ST6



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CIVIL ENGINEERING TESTING LABORATORIES

JOB NO: SWL01227 **Your Ref** - **Date** 14 August 2018

ITS Engineers
Carl Cronje Drive
Bellville
7530

PROJECT: Erica Rd

ATTENTION: Mr Wilhelm de Klerk

TMH5 MD1, MD2 / SANS 3001 GR1, PR5, GR10, GR12, GR30, GR40

The unambiguous description of the sample/s as received are as follows :

SAMPLE No.	2561 A	SPEC	2561 B	SPEC		
HOLE No. / SV. / CHAINAGE	TP19		TP19			
ROAD No. OR NAME	Erica Road		Erica Road			
LAYER TESTED / SAMPLED FROM	0,0 - 0,5m		0,5 - 1,5m			
DATE RECEIVED	28.07.18		28.07.18			
CLIENTS MARKING	None	G9	None	G8		
DESCRIPTION OF SAMPLE (COLOUR & TYPE)	Light Grey Sand		Light Grey Sand			
REDUCTION FACTOR / RF CHECK	1,0000		1,0000			
	0,10	< 1%	0,80	< 1%		
SIEVE ANALYSIS (mm) SANS 3001 GR1	100,0	100	100			
	75,0	100	100			
	63,0	100	100			
	53,0	100	100			
	37,5	100	100	-	-	
	28,0	100	100	-	-	
	20,0	100	100	-	-	
	14,0	100	100	-	-	
	5,00	100	100	-	-	
	2,00	100	100	-	-	
	0,425	80	100	77	-	
	0,075	2	100	3	-	
ATTERBERG LIMITS SANS 3001 GR10, GR12	LL%	NP	NP	≤ 7		
	P.I.	NP	NP	≤ 12		
	LS%	0.0	0.0	-		
	GM	1,18	2.7≥ GM ≥ 0.75	1,21	2.7≥ GM ≥ 0.75	
SOIL-MORTAR PERCENTAGES SANS 3001 PR5	Coarse sand	20	21			
	Fine sand	78	76			
	Coarse fine sand	47	44			
	Medium fine sand	25	26			
	Fine fine sand	6	6			
	Silt and clay	2	3			
	Coarse sand ratio	0,2	0,2			
MOD AASHTO SANS 3001 GR30	OMC%	9,6	9,9			
	MDD(KG/M ³)	1714	1703			
C.B.R. SANS 3001 GR40	COMP MC	9,3	9,7			
	% SWELL	0.0	0.0	1,50	1,50	
	100%	16	18	-	-	
	98%	13	15	-	-	
	97%	12	14	-	-	
	95%	10	12	-	-	
	93%	8	10	7	10	
90%	6	8	-	-		
Electrical Conductivity TMH1 A21T*						
pH Value TMH1 A20*						
REMARKS / NOTES						

NOTE: All tests marked with (*) means that those test methods are not accredited.

Erika Drive Test Pit 1-R – Location: Exiting
Road Surface

Client: **ITS Engineers**
Project: Erica Rd
Attention: Mr Wilhelm de Klerk
Your Ref. No: -
Date Reported Wednesday, 15 August 2018

TEST REPORT REFERENCE NUMBER / JOB NUMBER :

SWL01227

Dear Sir / Madam

Herewith please find the original reports pertaining to the above mentioned project.

Stake Value:

TP1-R

Test Requested

3x MDD / CBR /IND
1x 1m DCP

Site Sampling and Materials Information

Sampling Method TMH5 Method MC1
Environmental Condition Moderate

FINAL REPORT

We would like to take this opportunity to thank you for your valued support.
Should you have any further enquiries please don't hesitate to contact me.

Yours Faithfully

STEYN-WILSON LABORATORIES (PTY) LTD

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Mr. R Wilson
Technical Signatory

DIRECTORS: Mr. J. Steyn ND-Civil (Managing) | Mr. R. Wilson B-Tech Civil (Operations)
FINANCIAL MANAGER: Mr. D. Erasmus (SAICA Reg No: 200522562)
LABORATORY MANAGER: Mr. K. Booysen





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LABORATORIES

CIVIL ENGINEERING TESTING LABORATORIES

11 Gooderson Road Blackheath

PO Box 58 Blackheath 7581

Tel: 021 905 0435

Fax: 086 499 9482

Email: admin@steynwilson.co.za

Web: www.steynwilson.co.za

JOB NO:	SWL01227	Ref.	-	DATE:	15-Aug-18
Client	ITS Engineers	Project:	Erica Rd		
	Carl Cronje Drive	Site / Road:	Erica Rd		
	Bellville	Stake Value:	TP1-R		
	7530	Test Hole No:	TP1-R		
Attention:	Mr Wilhelm de Klerk	Side Walls	Stable		
GPS / WGS84	3394150 01866772	Excavation Method	Pick & Shovel & Breaker		
Sampling Method	TMH5 Method MC1	Refusal	None		
		Water table	None		
		Environmental Condition	Sunny and Hot with Wind		

SOIL PROFILE - GRONDPROFIEL

DEPTH (mm)	PROFILE	DESCRIPTION	SAMPLE No.
0			
0-50 (50)		Black, Asphalt W/C	-
50-200 (150)		Sl. Moist, Dark Olive, Medium Dense, Silty Sandy fine to coarse sub-angular Hornfels GRAVEL, Intact, Imported (HCL+)(Phen-)	2562
200-400 (200)		Sl. Moist, Dark reddish Brown, Medium Dense, Silty fine to medium grain SAND with abundant Calcrete Pebbles, Intact, Imported (HCL+)(Phen-)	2563
400-1000 (600)		Sl. Moist, Light Grey, Medium Dense, Silty fine to medium grain SAND, Intact, Insitu (HCL-)(Phen-)	2564

Surface Visual



Profile



Spoils





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JOB No: SWL01227 **Ref. No:** - **Date:** 15 August 2018

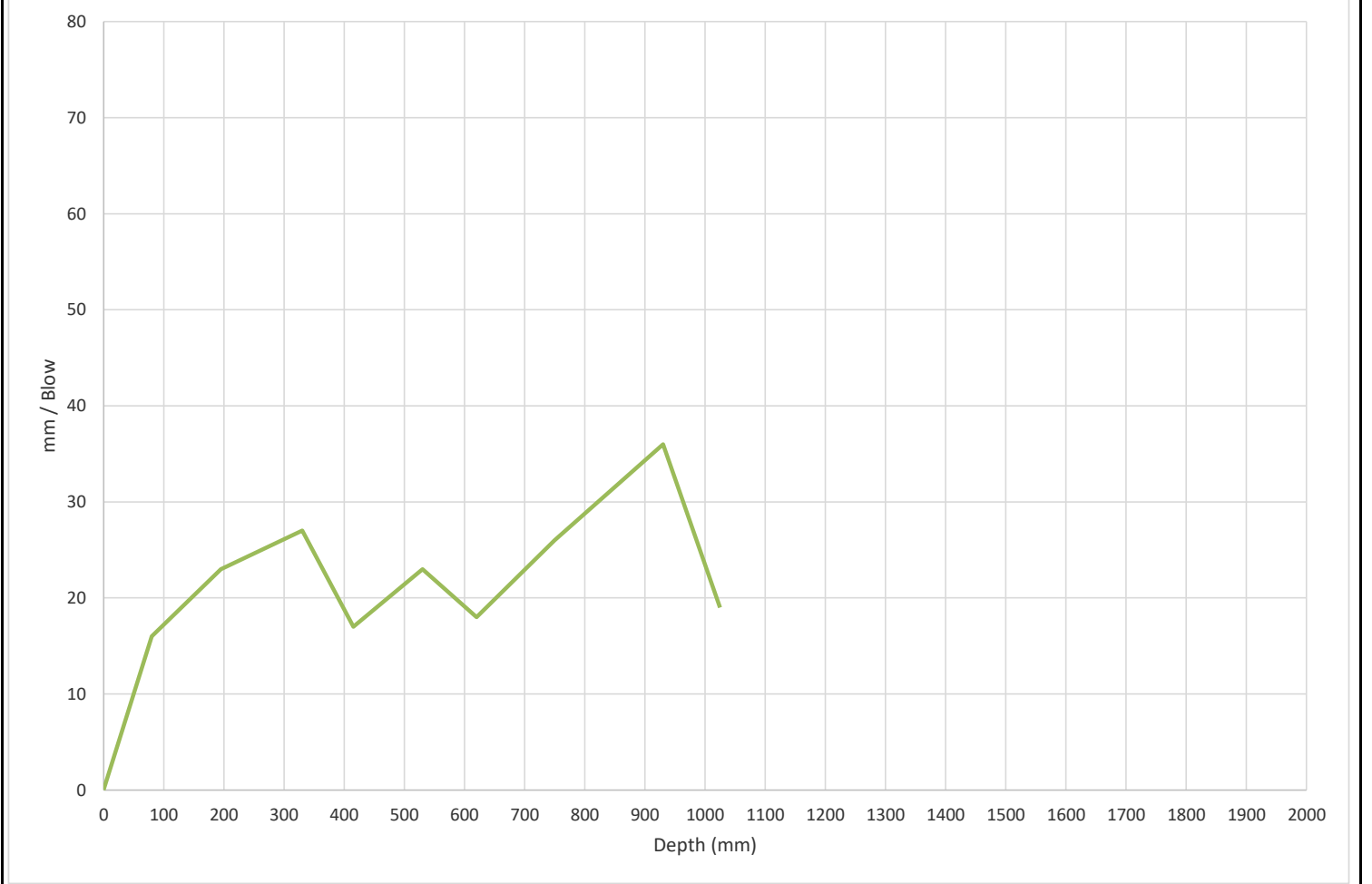
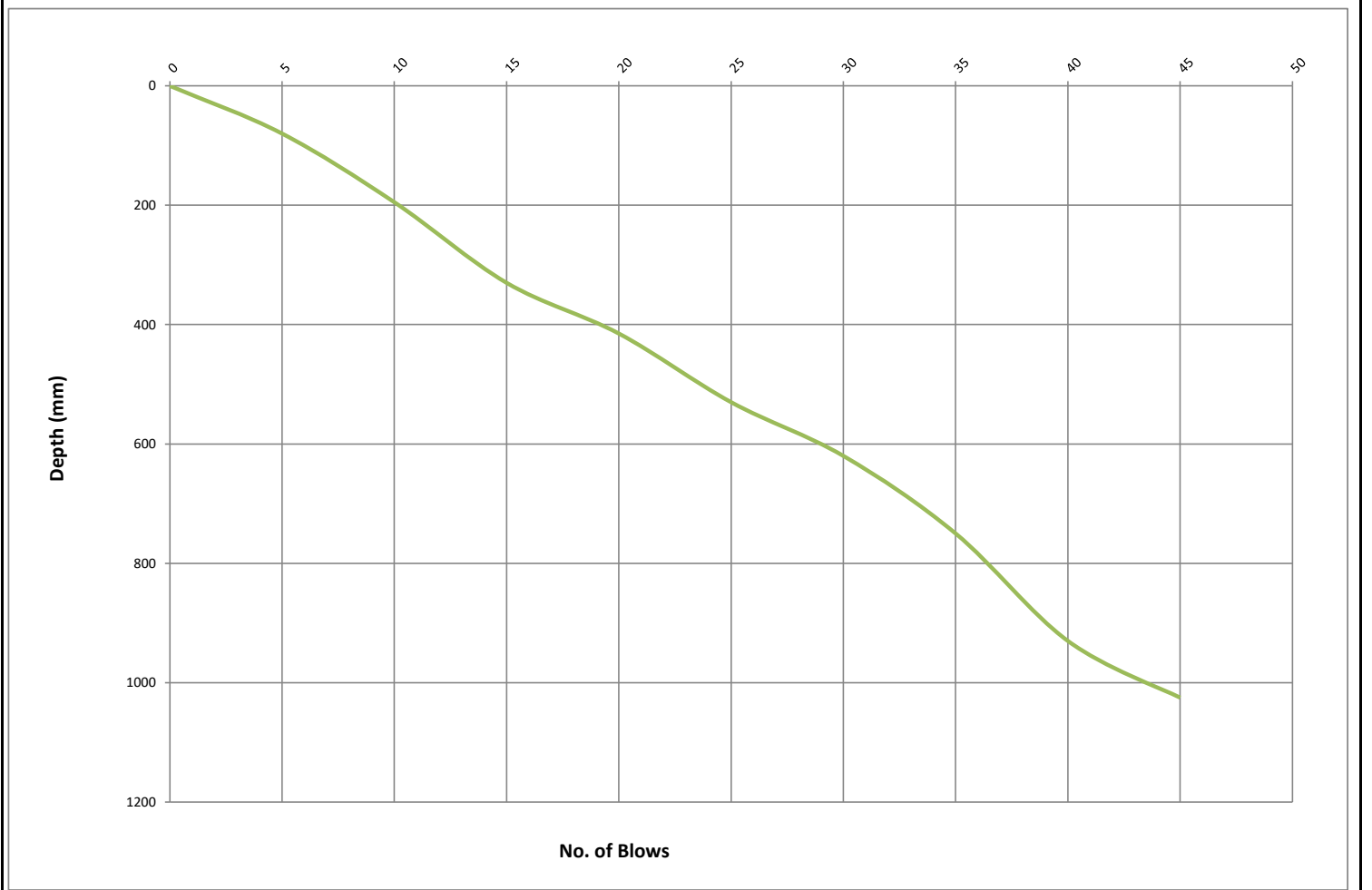
Client ITS Engineers
Carl Cronje Drive
Bellville
7530
Attention: Mr Wilhelm de Klerk

DYNAMIC CONE PENETROMETER TMH6 ST6

PROJECT:	Erica Rd	LEVEL:	1.0m Bottom of TP
TEST POSITION:	TP1-R	FOUNDATION:	-
TEST DEPTH:	1m	STARTING DEPTH:	60mm
MATERIAL TYPE:	Sandy Materials	Max. penetration depth:	1025mm
CONSTRUCTION TYPE:	Road Construction	REFUSAL:	None
INSTRUMENT (DCP) SET No:	BT2-0003	NOB/TEST:	5

Number of Blows	Depth (mm)	Corrective Depth (mm)	Penetration Tempo	Structure Nr. (dn) mm/blow
0	60	0		
5	140	80	80	16
10	255	195	115	23
15	390	330	135	27
20	475	415	85	17
25	590	530	115	23
30	680	620	90	18
35	810	750	130	26
40	990	930	180	36
45	1085	1025	95	19

GRAPHICAL REPRESENTATION / DYNAMIC CONE PENETROMETER TMH6 ST6



NOTE: All tests marked with (*) means that those test methods are not accredited.



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CIVIL ENGINEERING TESTING LABORATORIES

JOB NO: SWL01227 **Your Ref** - **Date** 15 August 2018

ITS Engineers
Carl Cronje Drive
Bellville
7530

PROJECT: Erica Rd

ATTENTION: Mr Wilhelm de Klerk

TMH5 MD1, MD2 / SANS 3001 GR1, PR5, GR10, GR12, GR30, GR40

The unambiguous description of the sample/s as received are as follows :

SAMPLE No.	2562	SPEC	2563	SPEC	2564	SPEC	
HOLE No. / SV. / CHAINAGE	TP1 - R (50-200)	G6	TP1 - R (200-400)	G6	TP1 (400 - 1000)	G9	
ROAD No. OR NAME	Erica Road		Erica Road		Erica Road		
LAYER TESTED / SAMPLED FROM	Layer 2		Layer 3		Layer 4		
DATE RECEIVED	28.07.18		28.07.18		28.07.18		
CLIENTS MARKING	None		None		None		
DESCRIPTION OF SAMPLE (COLOUR & TYPE)	Dark Olive Hornfels Gravel		Dark Reddish Brown Sand		Light Grey Sand		
REDUCTION FACTOR / RF CHECK	0,0444 0,13	< 1%	0,0452 0,12	< 1%	1,0000 0,14	< 1%	
SIEVE ANALYSIS (mm) SANS 3001 GR1	100,0	100	100	100	100		
	75,0	100	100	100	100		
	63,0	100	100	100	100		
	53,0	100	100	100	100		
	37,5	100	-	99	-	100	-
	28,0	100	-	98	-	100	-
	20,0	91	-	94	-	100	-
	14,0	76	-	90	-	100	-
	5,00	46	-	76	-	100	-
	2,00	37	-	68	-	100	-
	0,425	27	-	53	-	75	-
	0,075	12	-	1	-	1	-
ATTERBERG LIMITS SANS 3001 GR10, GR12	LL%	25,7	-	NP	-	NP	≤ 7
	P.I.	8,1	≤ 12	NP	≤ 12	NP	≤ 12
	LS%	3,8	≤ 5	0.0	≤ 5	0.0	-
	GM	2,24	2.6≥ GM ≥ 1.2	1,71	2.6≥ GM ≥ 1.2	1,24	2.7≥ GM ≥ 0.75
SOIL-MORTAR PERCENTAGES SANS 3001 PR5	Coarse sand	28		23		24	
	Fine sand	41		66		75	
	Coarse fine sand	15		26		42	
	Medium fine sand	17		29		25	
	Fine fine sand	9		11		8	
	Silt and clay	31		1		1	
	Coarse sand ratio	0,3		0,2		0,2	
MOD AASHTO SANS 3001 GR30	OMC%	5,5		7,7		9,2	
	MDD(KG/M ³)	2269		1914		1734	
C.B.R. SANS 3001 GR40	COMP MC	5,2		7,4		8,9	
	% SWELL	0,23	1,00	0,0	1,00	0,0	1,50
	100%	56	-	52	-	13	-
	98%	44	-	40	-	12	-
	97%	38	-	35	-	11	-
	95%	30	25	30	25	10	-
	93%	23	-	15	-	9	7
90%	16	-	14	-	8	-	
Electrical Conductivity TMH1 A21T*							
pH Value TMH1 A20*							
REMARKS / NOTES							

NOTE: All tests marked with (*) means that those test methods are not accredited.

Erika Drive Test Pit 2-R – Location: Exiting
Road Surface

Client: **ITS Engineers**
Project: Erica Rd
Attention: Mr Wilhelm de Klerk
Your Ref. No: -
Date Reported: Wednesday, 15 August 2018

TEST REPORT REFERENCE NUMBER / JOB NUMBER :

SWL01227

Dear Sir / Madam

Herewith please find the original reports pertaining to the above mentioned project.

Stake Value:

TP2-R

Test Requested

3x MDD / CBR /IND
1x 1m DCP

Site Sampling and Materials Information

Sampling Method: TMH5 Method MC1
Environmental Condition: Moderate

FINAL REPORT

We would like to take this opportunity to thank you for your valued support. Should you have any further enquiries please don't hesitate to contact me.

Yours Faithfully
STEYN-WILSON LABORATORIES (PTY) LTD

Remarks:

- Information contained herein is confidential to STEYN-WILSON PTY LTD and the addressee
- Opinions & Interpretations are not included in our schedule of Accreditation.
- The samples were subjected and analysed according to SANS 3001.
- The results reported relate only to the sample tested, Further use of the attached information is not the responsibility or liability of STEYN-WILSON LABORATORIES (PTY) LTD.
- This document is the correct record of all measurements made, and may not be reproduced other than with full written approval from a director of STEYN-WILSON LABORATORIES (PTY) LTD.
- Measuring equipment is traceable to national standards (Where applicable).
- Should there be any deviation from the prescribed test method comments will be made thereof, pertaining to the test on the relevant materials report.



Mr. R Wilson
Technical Signatory



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JOB NO:	SWL01227	Ref.	-	DATE:	15-Aug-18
Client	ITS Engineers Carl Cronje Drive Bellville 7530	Project:	Erica Rd	Site / Road:	Erica Rd
Attention:	Mr Wilhelm de Klerk	Stake Value:	TP2-R	Test Hole No:	TP2-R
GPS / WGS84	3394197 01867097	Side Walls	Stable	Excavation Method	Pick & Shovel & Breaker
Sampling Method	TMH5 Method MC1	Refusal	None	Water table	None
		Environmental Condition	Sunny and Hot with Wind		

SOIL PROFILE - GRONDPROFIEL

DEPTH (mm)	PROFILE	DESCRIPTION	SAMPLE No.
0			
0-50 (50)		Black, Asphalt W/C	-
50-210 (160)		Sl. Moist, Dark Olive, Dense, Silty Sandy fine to coarse sub-angular Hornfels GRAVEL, Intact, Imported (HCL+)(Phen-)	2565
210-350 (140)		Sl. Moist, Dark reddish Brown, Medium Dense, Silty fine to medium grain SAND with abundant Calcrete Pebbles, Intact, Imported (HCL+)(Phen-)	2566
350-1000 (650)		Sl. Moist, Light Grey, Medium Dense, Silty fine to medium grain SAND, Intact, Insitu (HCL-)(Phen-)	2567

Surface Visual



Profile



Spoils





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JOB No: SWL01227 **Ref. No:** - **Date:** 15 August 2018

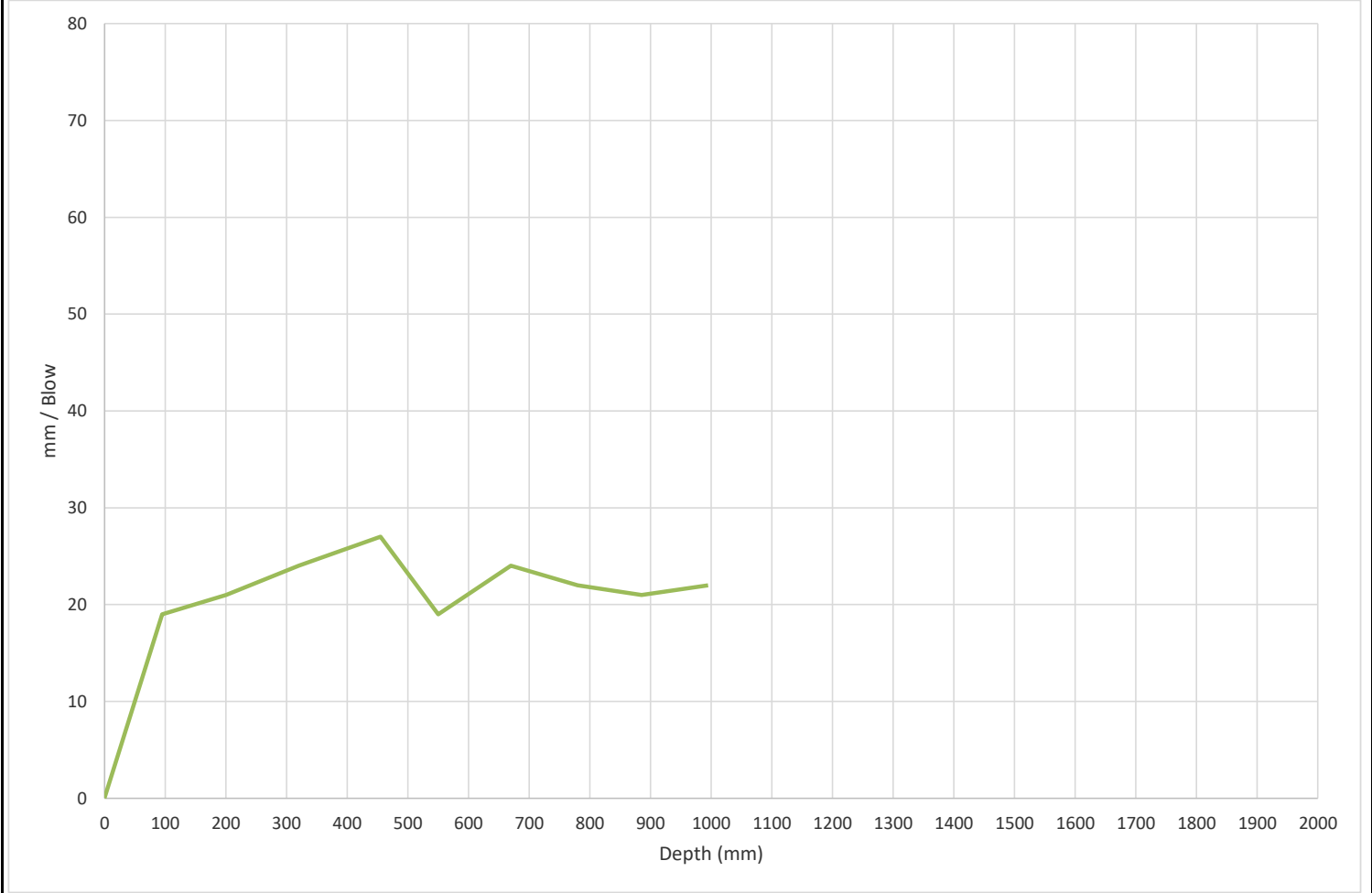
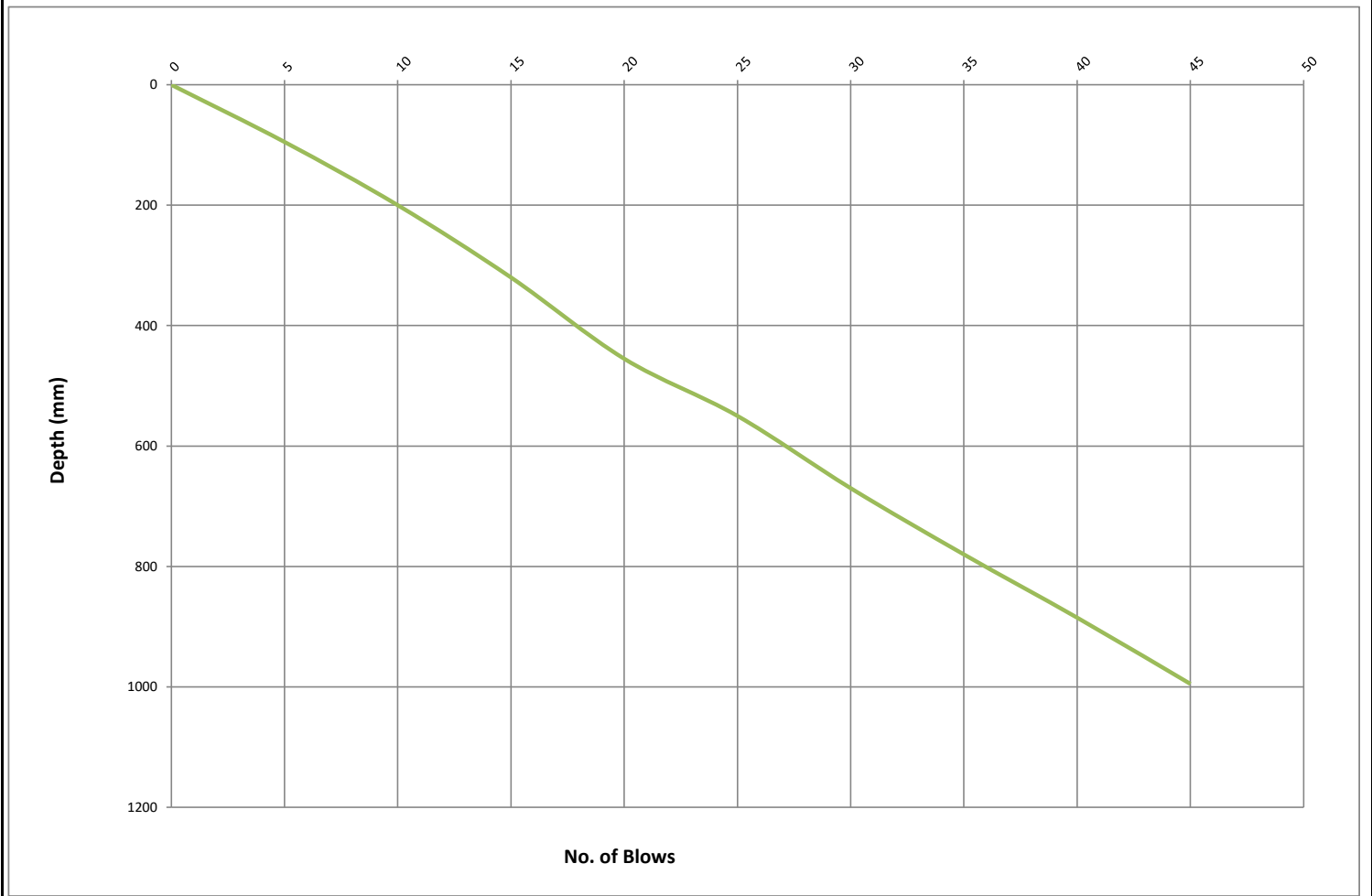
Client ITS Engineers
Carl Cronje Drive
Bellville
7530
Attention: Mr Wilhelm de Klerk

DYNAMIC CONE PENETROMETER TMH6 ST6

PROJECT:	Erica Rd	LEVEL:	1.0m Bottom of TP
TEST POSITION:	TP2-R	FOUNDATION:	-
TEST DEPTH:	1m	STARTING DEPTH:	110mm
MATERIAL TYPE:	Sandy Materials	Max. penetration depth:	995mm
CONSTRUCTION TYPE:	Road Construction	REFUSAL:	None
INSTRUMENT (DCP) SET No:	BT2-0003	NOB/TEST:	5

Number of Blows	Depth (mm)	Corrective Depth (mm)	Penetration Tempo	Structure Nr. (dn) mm/blow
0	110	0		
5	205	95	95	19
10	310	200	105	21
15	430	320	120	24
20	565	455	135	27
25	660	550	95	19
30	780	670	120	24
35	890	780	110	22
40	995	885	105	21
45	1105	995	110	22

GRAPHICAL REPRESENTATION / DYNAMIC CONE PENETROMETER TMH6 ST6



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CIVIL ENGINEERING TESTING LABORATORIES

JOB NO: SWL01227 **Your Ref** - **Date** 15 August 2018

ITS Engineers
Carl Cronje Drive
Bellville
7530

PROJECT: Erica Rd

ATTENTION: Mr Wilhelm de Klerk

TMH5 MD1, MD2 / SANS 3001 GR1, PR5, GR10, GR12, GR30, GR40

The unambiguous description of the sample/s as received are as follows :

SAMPLE No.	2565	SPEC	2566	SPEC	2567	SPEC	
HOLE No. / SV. / CHAINAGE	TP2		TP2		TP2		
ROAD No. OR NAME	Erica Road		Erica Road		Erica Road		
LAYER TESTED / SAMPLED FROM	Layer 2		Layer 3		Layer 4		
DATE RECEIVED	04.08.18		04.08.18		04.08.18		
CLIENTS MARKING	None		None		None		
DESCRIPTION OF SAMPLE (COLOUR & TYPE)	Dark Olive Hornfels Gravel	G5	Dark Reddish Brown Sand	G7	Light Grey Sand	G8	
REDUCTION FACTOR / RF CHECK	0,0656		0,0592		1,0000		
	0,06	< 1%	0,07	< 1%	0,08	< 1%	
SIEVE ANALYSIS (mm) SANS 3001 GR1	100,0	100	100		100		
	75,0	100	100		100		
	63,0	100	100		100		
	53,0	100	100		100		
	37,5	100	99	-	100	-	
	28,0	94	99	-	100	-	
	20,0	79	96	-	100	-	
	14,0	68	93	-	100	-	
	5,00	44	77	-	100	-	
	2,00	35	68	-	100	-	
	0,425	25	50	-	72	-	
	0,075	14	1	-	1	-	
ATTERBERG LIMITS SANS 3001 GR10, GR12	LL%	25,5	≤ 30	NP	-	NP	≤ 7
	P.I.	6,8	≤ 10	NP	≤ 12	NP	≤ 12
	LS%	2,5	≤ 5	0.0	≤ 7	0.0	-
	GM	2,25	2.5≥ GM ≥ 1.5	1,75	2.7≥ GM ≥ 0.75	1,27	2.7≥ GM ≥ 0.75
SOIL-MORTAR PERCENTAGES SANS 3001 PR5	Coarse sand	28		26		28	
	Fine sand	32		63		71	
	Coarse fine sand	9		22		33	
	Medium fine sand	14		28		27	
	Fine fine sand	9		13		11	
	Silt and clay	40		1		1	
	Coarse sand ratio	0,3		0,3		0,3	
MOD AASHTO SANS 3001 GR30	OMC%	6,2		7,9		9,6	
	MDD(KG/M ³)	2292		1987		1742	
C.B.R. SANS 3001 GR40	COMP MC	5,9		7,6		9,3	
	% SWELL	0.0	≤ 0.5	0.0	1,50	0.0	1,50
	100%	90	-	44	-	15	-
	98%	70	-	33	-	14	-
	97%	60	-	30	-	13	-
	95%	49	45	23	-	12	-
	93%	37	-	18	15	11	10
90%	25	-	12	-	9	-	
Electrical Conductivity TMH1 A21T*							
pH Value TMH1 A20*							
REMARKS / NOTES							

NOTE: All tests marked with (*) means that those test methods are not accredited.

Erika Drive Test Pit 3-R – Location: Exiting
Road Surface

Client: **ITS Engineers**
Project: Erica Rd
Attention: Mr Wilhelm de Klerk
Your Ref. No: -
Date Reported: Wednesday, 15 August 2018

TEST REPORT REFERENCE NUMBER / JOB NUMBER :

SWL01227

Dear Sir / Madam

Herewith please find the original reports pertaining to the above mentioned project.

Stake Value:

TP3-R

Test Requested

3x MDD / CBR /IND
1x Indicator Only
1x 1m DCP

Site Sampling and Materials Information

Sampling Method: TMH5 Method MC1
Environmental Condition: Moderate

FINAL REPORT

We would like to take this opportunity to thank you for your valued support. Should you have any further enquiries please don't hesitate to contact me.

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Mr. R Wilson
Technical Signatory



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JOB NO:	SWL01227	Ref.	-	DATE:	15-Aug-18
Client	ITS Engineers Carl Cronje Drive Bellville 7530	Project:	Erica Rd	Site / Road:	Erica Rd
Attention:	Mr Wilhelm de Klerk	Stake Value:	TP3-R	Test Hole No:	TP3-R
GPS / WGS84	33942528 018674115	Side Walls	Stable	Excavation Method	Pick & Shovel & Breaker
Sampling Method	TMH5 Method MC1	Refusal	None	Water table	None
		Environmental Condition	Sunny and Hot with Wind		

SOIL PROFILE - GRONDPROFIEL

DEPTH (mm)	PROFILE	DESCRIPTION	SAMPLE No.
0			
0-50 (50)		Black, Asphalt W/C Crocodile cracks	-
50-150 (100)		Sl. Moist, Dark Olive, Dense, Silty Sandy fine to coarse sub-angular Hornfels GRAVEL, Intact, Imported (HCL+)(Phen-)	2568
150-350 (200)		Sl. Moist, Dark reddish Brown, Medium Dense, Silty fine to medium grain SAND with abundant Ferricrete Pebbles, Intact, Imported (HCL+)(Phen-)	2569
350-440 (90)		Sl. Moist, Light Brown, Medium Dense, Silty fine to medium grain SAND with minor Calcrete Pebbles, Intact, Imported (HCL+)(Phen-) (correction layer)	2570
350-1000 (650)		Sl. Moist, Dark Brown, Medium Dense, Silty fine to medium grain SAND, Intact, Insitu (HCL-)(Phen-)	2578

Surface Visual



Profile



Spoils





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JOB No: SWL01227 **Ref. No:** - **Date:** 15 August 2018

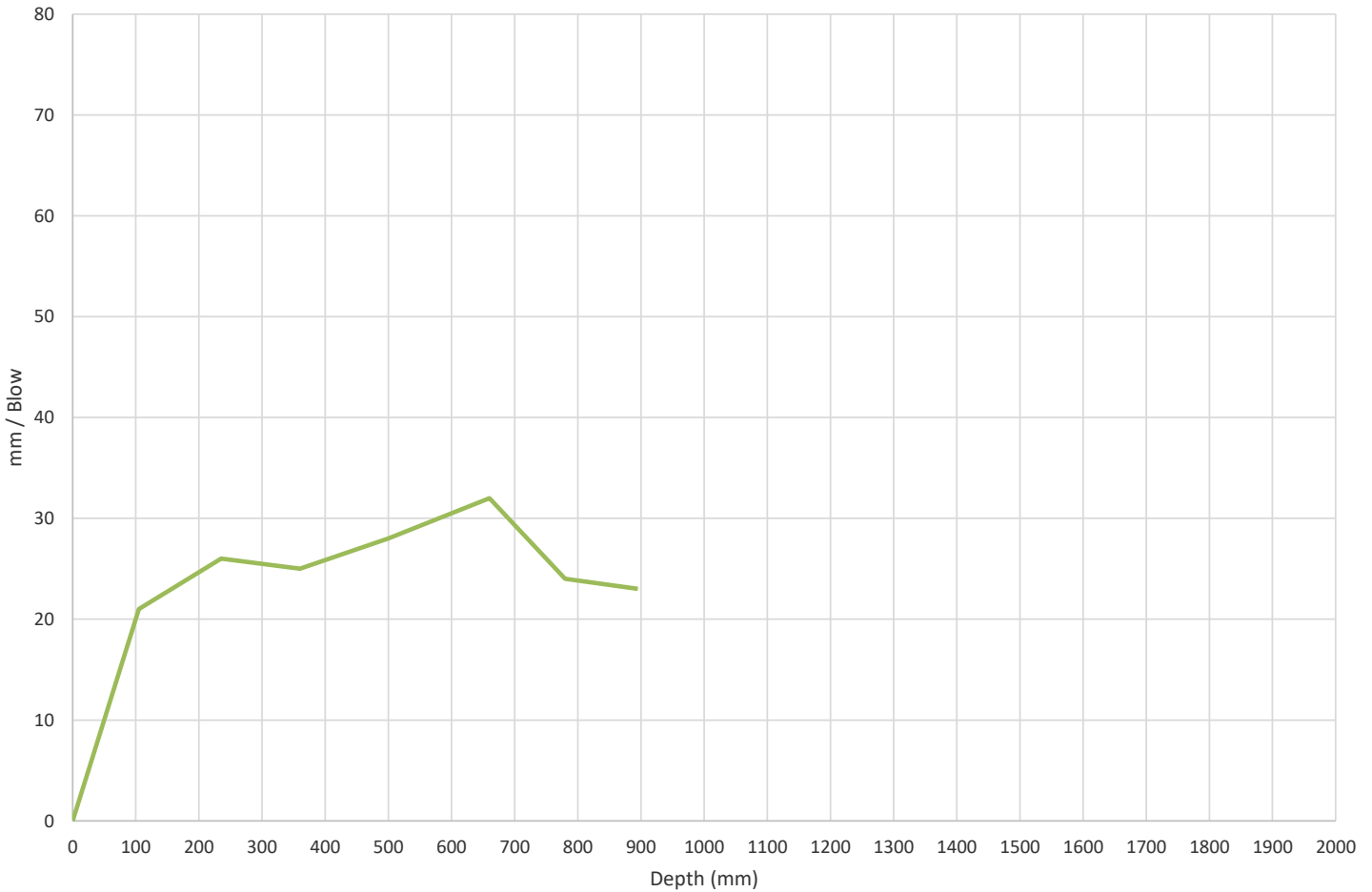
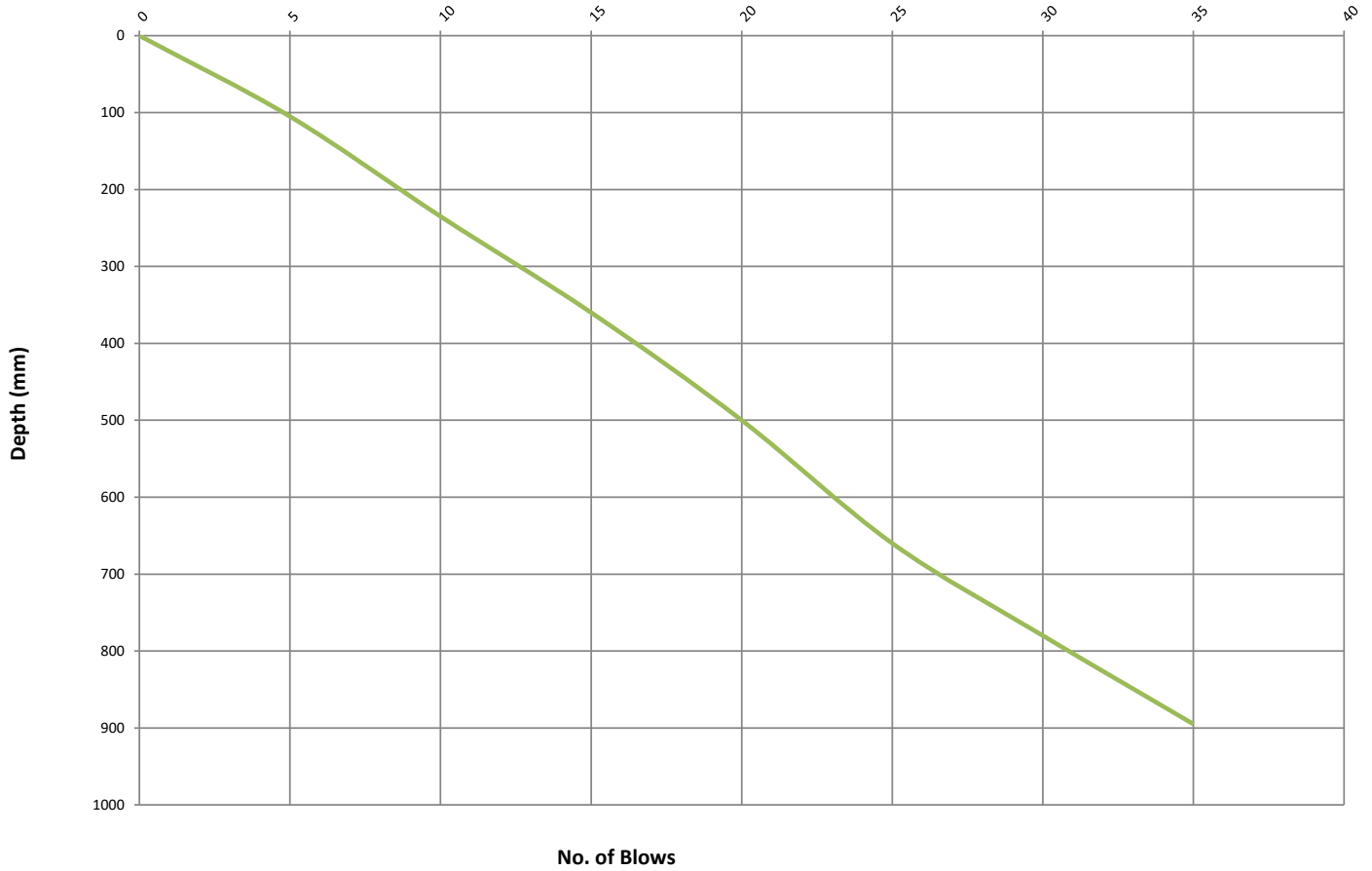
Client ITS Engineers
Carl Cronje Drive
Bellville
7530
Attention: Mr Wilhelm de Klerk

DYNAMIC CONE PENETROMETER TMH6 ST6

PROJECT:	Erica Rd	LEVEL:	1.0m Bottom of TP
TEST POSITION:	TP3-R	FOUNDATION:	-
TEST DEPTH:	1m	STARTING DEPTH:	155mm
MATERIAL TYPE:	Sandy Materials	Max. penetration depth:	895mm
CONSTRUCTION TYPE:	Road Construction	REFUSAL:	None
INSTRUMENT (DCP) SET No:	BT2-0003	NOB/TEST:	5

Number of Blows	Depth (mm)	Corrective Depth (mm)	Penetration Tempo	Structure Nr. (dn) mm/blow
0	155	0		
5	260	105	105	21
10	390	235	130	26
15	515	360	125	25
20	655	500	140	28
25	815	660	160	32
30	935	780	120	24
35	1050	895	115	23

GRAPHICAL REPRESENTATION / DYNAMIC CONE PENETROMETER TMH6 ST6



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CIVIL ENGINEERING TESTING LABORATORIES

JOB NO: SWL01227 **Your Ref** - **Date** 15 August 2018

ITS Engineers
Carl Cronje Drive
Bellville
7530

PROJECT: Erica Rd

ATTENTION: Mr Wilhelm de Klerk

TMH5 MD1, MD2 / SANS 3001 GR1, PR5, GR10, GR12, GR30, GR40

The unambiguous description of the sample/s as received are as follows :

SAMPLE No.	2568	SPEC	2569	SPEC	2570	SPEC
HOLE No. / SV. / CHAINAGE	TP3		TP3		TP3	
ROAD No. OR NAME	Erica Road		Erica Road		Erica Road	
LAYER TESTED / SAMPLED FROM	Layer 2		Layer 3		Layer 4	
DATE RECEIVED	28.07.18		28.07.18		28.07.18	
CLIENTS MARKING	None		None		None	
DESCRIPTION OF SAMPLE (COLOUR & TYPE)	Dark Olive Hornfels Gravel	G5	Dark Reddish Brown Sand	G7	Light Brown Sand	
REDUCTION FACTOR / RF CHECK	0,0494		0,0451		0,2452	
	0,08	< 1%	0,08	< 1%	0,04	< 1%
SIEVE ANALYSIS (mm) SANS 3001 GR1	100,0	100	100		100	
	75,0	100	100		100	
	63,0	100	100		100	
	53,0	100	100		100	
	37,5	100	-	-	100	
	28,0	100	-	-	100	
	20,0	93	-	99	-	100
	14,0	82	-	97	-	94
	5,00	46	-	78	-	80
	2,00	36	20-70	66	-	72
	0,425	26	-	50	-	39
0,075	11	-	1	-	2	
ATTERBERG LIMITS SANS 3001 GR10, GR12	LL%	26,5	≤ 30	20,2	-	NP
	P.I.	7,8	≤ 10	6,2	≤ 12	NP
	LS%	3,6	≤ 5	3,1	≤ 7	0.0
	GM	2,28	2.5≥ GM ≥ 1.5	1,66	2.7≥ GM ≥ 0.75	1,87
SOIL-MORTAR PERCENTAGES SANS 3001 PR5	Coarse sand	28		25		46
	Fine sand	41		48		50
	Coarse fine sand	14		16		21
	Medium fine sand	17		21		19
	Fine fine sand	10		11		10
	Silt and clay	31		1		3
	Coarse sand ratio	0,3		0,2		0,5
MOD AASHTO SANS 3001 GR30	OMC%	6,4		7,4		
	MDD(KG/M ³)	2289		2166		
C.B.R. SANS 3001 GR40	COMP MC	6,1		7,1		
	% SWELL	0.0	≤ 0.5	0.0	1,50	
	100%	110	-	21	-	
	98%	90	-	19	-	
	97%	80	-	19	-	
	95%	50	45	17	-	
	93%	35	-	15	15	
90%	22	-	14	-		
Electrical Conductivity TMH1 A21T*						
pH Value TMH1 A20*						
REMARKS / NOTES						

Indicator Only

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CIVIL ENGINEERING TESTING LABORATORIES

JOB NO: SWL01227 **Your Ref** - **Date** 15 August 2018

ITS Engineers
Carl Cronje Drive
Bellville
7530

PROJECT: Erica Rd

ATTENTION: Mr Wilhelm de Klerk

TMH5 MD1, MD2 / SANS 3001 GR1, PR5, GR10, GR12, GR30, GR40

The unambiguous description of the sample/s as received are as follows :

SAMPLE No.	2578	SPEC				
HOLE No. / SV. / CHAINAGE	TP3	G8				
ROAD No. OR NAME	Erica Road					
LAYER TESTED / SAMPLED FROM	Layer 5					
DATE RECEIVED	28.07.18					
CLIENTS MARKING	None					
DESCRIPTION OF SAMPLE (COLOUR & TYPE)	Dark Brown Sand					
REDUCTION FACTOR / RF CHECK	0,0514 0,07		< 1%			
SIEVE ANALYSIS (mm) SANS 3001 GR1	100,0	100				
	75,0	100				
	63,0	100				
	53,0	100				
	37,5	100	-			
	28,0	99	-			
	20,0	99	-			
	14,0	99	-			
	5,00	99	-			
	2,00	99	-			
	0,425	73	-			
0,075	7	-				
ATTERBERG LIMITS SANS 3001 GR10, GR12	LL%	NP	≤ 7			
	P.I.	NP	≤ 12			
	LS%	0.0	-			
	GM	1,87	2.7 ≥ GM ≥ 0.75			
SOIL-MORTAR PERCENTAGES SANS 3001 PR5	Coarse sand	27				
	Fine sand	66				
	Coarse fine sand	34				
	Medium fine sand	27				
	Fine fine sand	5				
	Silt and clay	7				
	Coarse sand ratio	0,3				
MOD AASHTO SANS 3001 GR30	OMC%	9,4				
	MDD(KG/M ³)	1913				
C.B.R. SANS 3001 GR40	COMP MC	9,1	1,50			
	% SWELL	0.0	-			
	100%	27	-			
	98%	21	-			
	97%	19	-			
	95%	15	-			
	93%	13	10			
90%	9	-				
Electrical Conductivity TMH1 A21T*						
pH Value TMH1 A20*						
REMARKS / NOTES						

NOTE: All tests marked with (*) means that those test methods are not accredited.

Erika Drive Test Pit 4-R – Location: Existing
Road Surface

Client: **ITS Engineers**
Project: Erica Rd
Attention: Mr Wilhelm de Klerk
Your Ref. No: -
Date Reported: Wednesday, 15 August 2018

TEST REPORT REFERENCE NUMBER / JOB NUMBER :

SWL01227

Dear Sir / Madam

Herewith please find the original reports pertaining to the above mentioned project.

Stake Value:

TP4-R

Test Requested

1x MDD / CBR /IND
2x Indicator
1x 1m DCP

Site Sampling and Materials Information

Sampling Method: TMH5 Method MC1
Environmental Condition: Moderate

FINAL REPORT

We would like to take this opportunity to thank you for your valued support. Should you have any further enquiries please don't hesitate to contact me.

Yours Faithfully
STEYN-WILSON LABORATORIES (PTY) LTD

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Mr. R Wilson
Technical Signatory

DIRECTORS: Mr. J. Steyn ND-Civil (Managing) | Mr. R. Wilson B-Tech Civil (Operations)
FINANCIAL MANAGER: Mr. D. Erasmus (SAICA Reg No: 200522562)
LABORATORY MANAGER: Mr. K. Booysen





STEYN-WILSON
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Email: admin@steynwilson.co.za

Web: www.steynwilson.co.za

JOB NO:	SWL01227	Ref.	-	DATE:	15-Aug-18
Client	ITS Engineers Carl Cronje Drive Bellville 7530	Project:	Erica Rd	Site / Road:	Erica Rd
Attention:	Mr Wilhelm de Klerk	Stake Value:	TP4-R	Test Hole No:	TP4-R
GPS / WGS84	3394297 01867813	Side Walls	Stable	Excavation Method	Pick & Shovel & Breaker
Sampling Method	TMH5 Method MC1	Refusal	None	Water table	None
		Environmental Condition	Sunny and Hot with Wind		

SOIL PROFILE - GRONDPROFIEL

DEPTH (mm)	PROFILE	DESCRIPTION	SAMPLE No.
0			
0-110 (110)		Black, Asphalt W/C	-
110-180 (70)		Black, Asphalt BTB	-
180-230 (50)		Sl. Moist, Light Olive, Dense, Silty Sandy fine to coarse sub-angular Hornfels GRAVEL, Intact, Imported (HCL+)(Phen-)	2571
230-300 (70)		Sl. Moist, Light reddish Orange, Medium Dense, Silty fine to medium grain SAND with minor Gravel, Intact, Imported (HCL+)(Phen-) (correction layer)	2572
300-1000 (700+)		Sl. Moist, Light Grey, Medium Dense, Silty fine to medium grain SAND, Intact, Insitu (HCL-)(Phen-)	2573

Surface Visual



Profile



Spoils





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JOB No: SWL01227 **Ref. No:** - **Date:** 15 August 2018

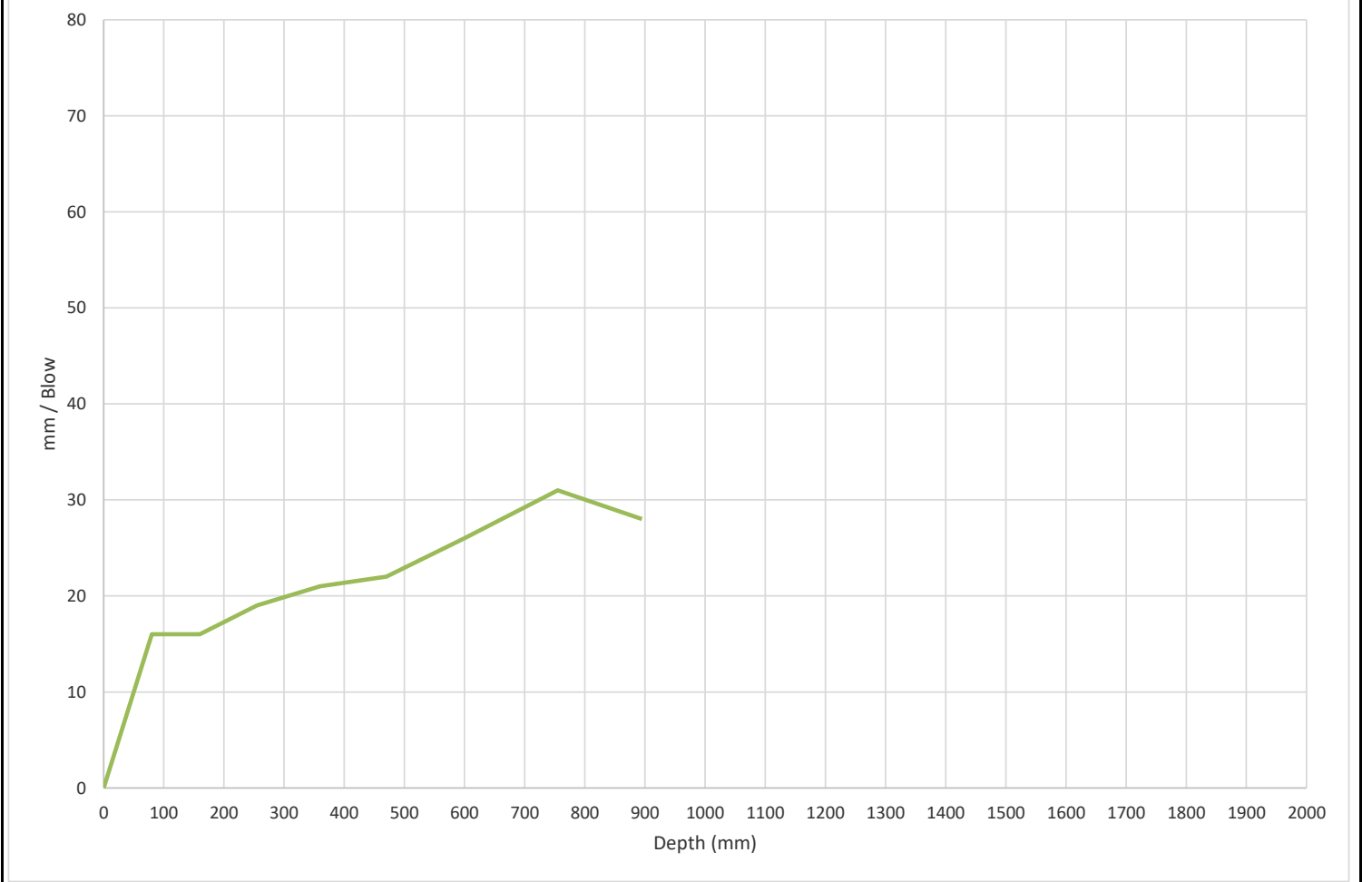
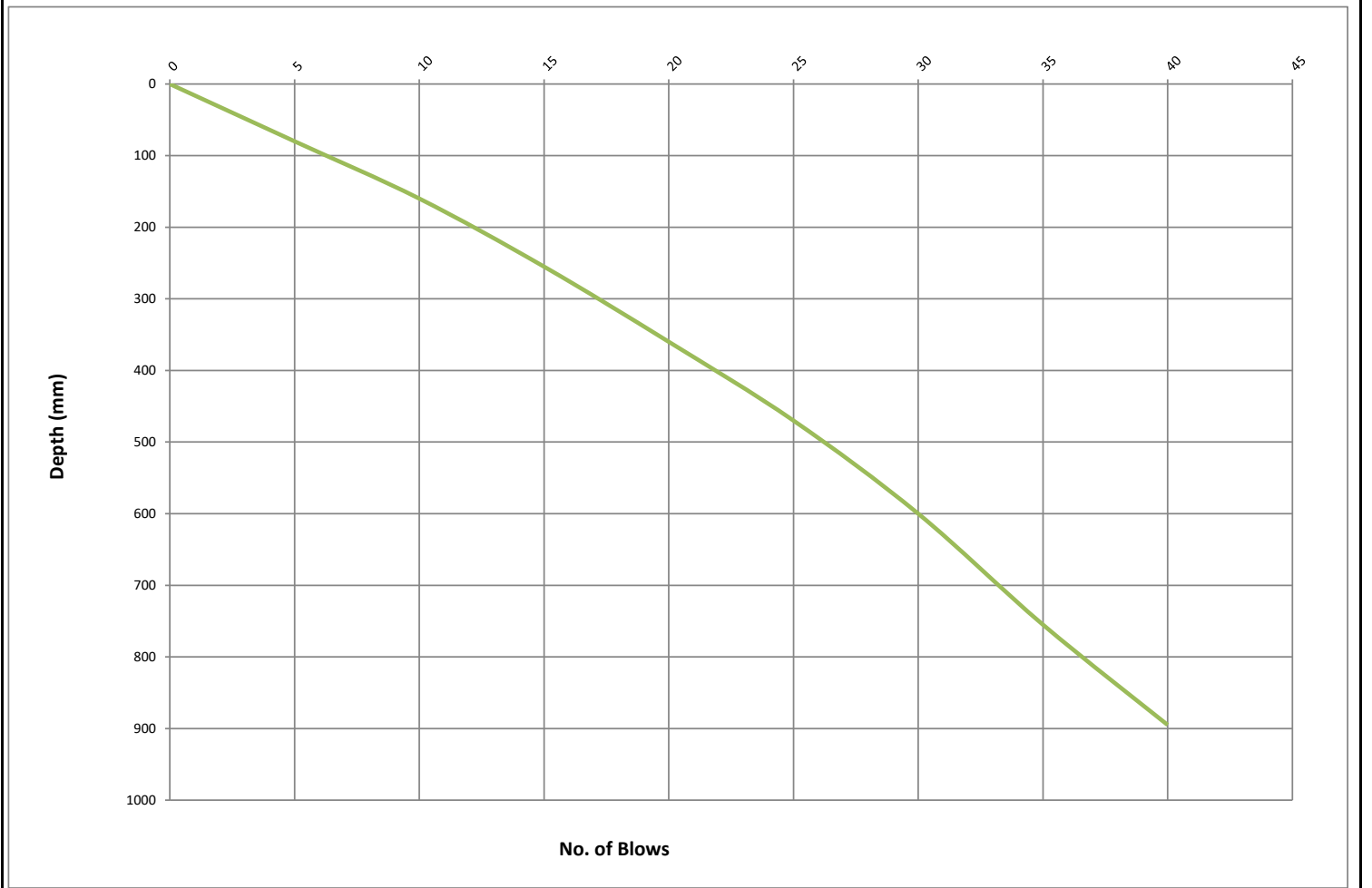
Client ITS Engineers
Carl Cronje Drive
Bellville
7530
Attention: Mr Wilhelm de Klerk

DYNAMIC CONE PENETROMETER TMH6 ST6

PROJECT:	Erica Rd	LEVEL:	1.0m Bottom of TP
TEST POSITION:	TP4-R	FOUNDATION:	-
TEST DEPTH:	1m	STARTING DEPTH:	125mm
MATERIAL TYPE:	Sandy Materials	Max. penetration depth:	895mm
CONSTRUCTION TYPE:	Road Construction	REFUSAL:	None
INSTRUMENT (DCP) SET No:	BT2-0003	NOB/TEST:	5

Number of Blows	Depth (mm)	Corrective Depth (mm)	Penetration Tempo	Structure Nr. (dn) mm/blow
0	125	0		
5	205	80	80	16
10	285	160	80	16
15	380	255	95	19
20	485	360	105	21
25	595	470	110	22
30	725	600	130	26
35	880	755	155	31
40	1020	895	140	28

GRAPHICAL REPRESENTATION / DYNAMIC CONE PENETROMETER TMH6 ST6



NOTE: All tests marked with (*) means that those test methods are not accredited.



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CIVIL ENGINEERING TESTING LABORATORIES

JOB NO: SWL01227 **Your Ref** - **Date** 15 August 2018

ITS Engineers
Carl Cronje Drive
Bellville
7530

PROJECT: Erica Rd

ATTENTION: Mr Wilhelm de Klerk

TMH5 MD1, MD2 / SANS 3001 GR1, PR5, GR10, GR12, GR30, GR40

The unambiguous description of the sample/s as received are as follows :

SAMPLE No.	2571	SPEC	2572	SPEC	2573	SPEC
HOLE No. / SV. / CHAINAGE	TP4		TP4		TP4	
ROAD No. OR NAME	Erica Road		Erica Road		Erica Road	
LAYER TESTED / SAMPLED FROM	Layer 3		Layer 4		Layer 5	
DATE RECEIVED	04.08.18		04.08.18		04.08.18	
CLIENTS MARKING	None		None		None	G9
DESCRIPTION OF SAMPLE (COLOUR & TYPE)	Light Olive Hornfels Gravel		Light Reddish Orange Sand		Light Grey Sand	
REDUCTION FACTOR / RF CHECK	0,3839		0,1317		1,0000	
	0,06	< 1%	0,07	< 1%	0,07	< 1%
SIEVE ANALYSIS (mm) SANS 3001 GR1	100,0	100	100		100	
	75,0	100	100		100	
	63,0	100	98		100	
	53,0	100	98		100	
	37,5	100	98		100	-
	28,0	93	96		100	-
	20,0	81	94		100	-
	14,0	72	90		100	-
	5,00	54	84		100	-
	2,00	48	81		99	-
	0,425	35	59		64	-
	0,075	4	1		1	-
	ATTERBERG LIMITS SANS 3001 GR10, GR12	LL%	NP	NP		NP
P.I.		NP	NP		NP	≤ 12
LS%		0.0	0.0		0.0	-
GM		2,13	1,58		1,36	2,7≥ GM ≥ 0.75
SOIL-MORTAR PERCENTAGES SANS 3001 PR5	Coarse sand	28	28		36	
	Fine sand	63	69		63	
	Coarse fine sand	33	38		37	
	Medium fine sand	22	24		20	
	Fine fine sand	9	7		6	
	Silt and clay	9	1		1	
	Coarse sand ratio	0,3	0,3		0,4	
MOD AASHTO SANS 3001 GR30	OMC%				9,6	
	MDD(KG/M ³)				1795	
C.B.R. SANS 3001 GR40	COMP MC				9,3	
	% SWELL				0.0	1,50
	100%				24	-
	98%				17	-
	97%				14	-
	95%				9	-
	93%				7	7
90%				4	-	
Electrical Conductivity TMH1 A21T*						
pH Value TMH1 A20*						
REMARKS / NOTES						

NOTE: All tests marked with (*) means that those test methods are not accredited.

Erika Drive Test Pit 5-R – Location: Exiting
Road Surface

Client: **ITS Engineers**
Project: Erica Rd
Attention: Mr Wilhelm de Klerk
Your Ref. No: -
Date Reported: Wednesday, 15 August 2018

TEST REPORT REFERENCE NUMBER / JOB NUMBER :

SWL01227

Dear Sir / Madam

Herewith please find the original reports pertaining to the above mentioned project.

Stake Value:

TP5-R

Test Requested

2x MDD / CBR /IND
1x 1m DCP

Site Sampling and Materials Information

Sampling Method: TMH5 Method MC1
Environmental Condition: Moderate

FINAL REPORT

We would like to take this opportunity to thank you for your valued support. Should you have any further enquiries please don't hesitate to contact me.

Yours Faithfully
STEYN-WILSON LABORATORIES (PTY) LTD

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Technical Signatory

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FINANCIAL MANAGER: Mr. D. Erasmus (SAICA Reg No: 200522562)
LABORATORY MANAGER: Mr. K. Booysen





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JOB NO:	SWL01227	Ref.	-	DATE:	15-Aug-18
Client	ITS Engineers Carl Cronje Drive Bellville 7530	Project:	Erica Rd	Site / Road:	Erica Rd
Attention:	Mr Wilhelm de Klerk	Stake Value:	TP5-R	Test Hole No:	TP5-R
GPS / WGS84	3394453 01868085	Side Walls	Stable	Excavation Method	Pick & Shovel & Breaker
Sampling Method	TMH5 Method MC1	Refusal	None	Water table	None
		Environmental Condition	Sunny and Hot with Wind		

SOIL PROFILE - GRONDPROFIEL

DEPTH (mm)	PROFILE	DESCRIPTION	SAMPLE No.
0			
0-100 (100)		Black, Asphalt W/C	-
100-150 (50)		Black, Asphalt BTB	-
150-320 (170)		Sl. Moist, Dark Olive, Dense, Silty Sandy fine to coarse sub-angular Hornfels GRAVEL, Intact, Imported (HCL+)(Phen-)	2574
320-1000 (680+)		Sl. Moist, Dark Brown, Medium Dense, Silty fine to medium grain SAND, Intact, Insitu (HCL-)(Phen-)	2575

Surface Visual



Profile



Spoils





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JOB No: SWL01227 **Ref. No:** - **Date:** 15 August 2018

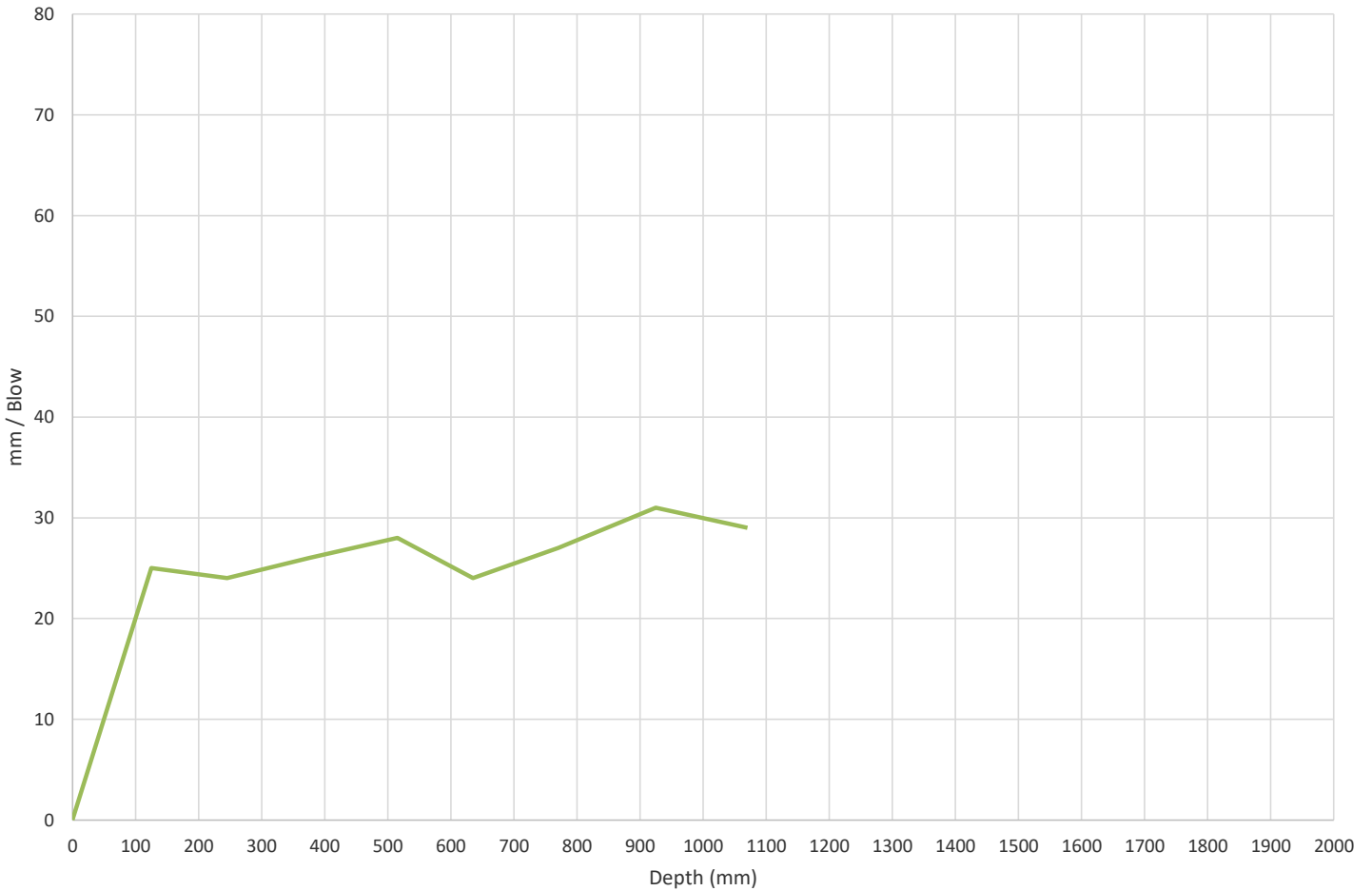
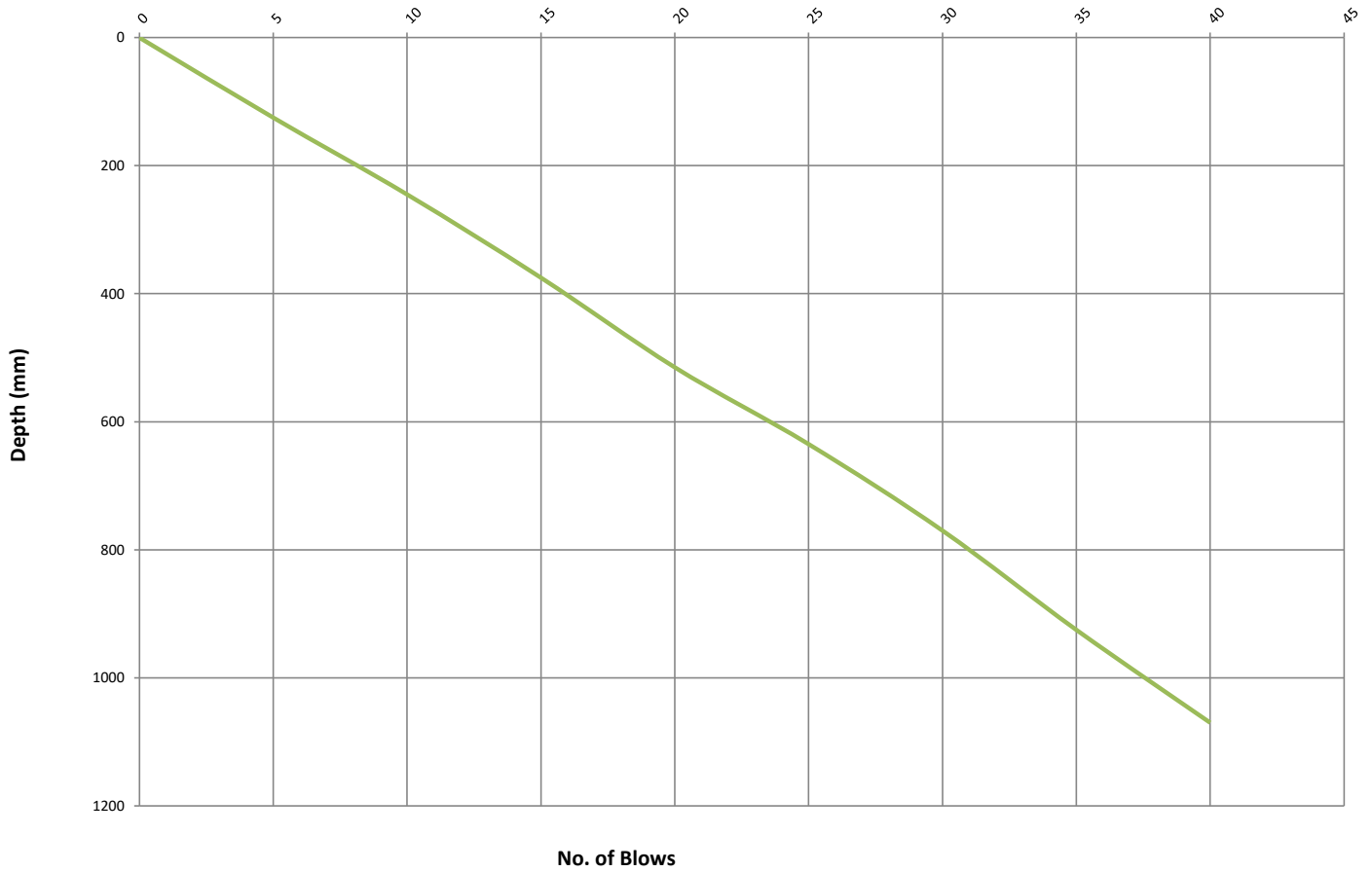
Client ITS Engineers
Carl Cronje Drive
Bellville
7530
Attention: Mr Wilhelm de Klerk

DYNAMIC CONE PENETROMETER TMH6 ST6

PROJECT:	Erica Rd	LEVEL:	1.0m Bottom TP
TEST POSITION:	TP5-R	FOUNDATION:	-
TEST DEPTH:	1m	STARTING DEPTH:	70mm
MATERIAL TYPE:	Sandy Materials	Max. penetration depth:	1070mm
CONSTRUCTION TYPE:	Road Construction	REFUSAL:	None
INSTRUMENT (DCP) SET No:	BT2-0003	NOB/TEST:	5

Number of Blows	Depth (mm)	Corrective Depth (mm)	Penetration Tempo	Structure Nr. (dn) mm/blow
0	70	0		
5	195	125	125	25
10	315	245	120	24
15	445	375	130	26
20	585	515	140	28
25	705	635	120	24
30	840	770	135	27
35	995	925	155	31
40	1140	1070	145	29

GRAPHICAL REPRESENTATION / DYNAMIC CONE PENETROMETER TMH6 ST6



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CIVIL ENGINEERING TESTING LABORATORIES

JOB NO: SWL01227 **Your Ref** - **Date** 15 August 2018

ITS Engineers
Carl Cronje Drive
Bellville
7530

PROJECT: Erica Rd

ATTENTION: Mr Wilhelm de Klerk

TMH5 MD1, MD2 / SANS 3001 GR1, PR5, GR10, GR12, GR30, GR40

The unambiguous description of the sample/s as received are as follows :

SAMPLE No.	2574	SPEC	2575	SPEC		
HOLE No. / SV. / CHAINAGE	TP5	G4 (37.5mm)	TP5	G9		
ROAD No. OR NAME	Erica Road		Erica Road			
LAYER TESTED / SAMPLED FROM	Layer 3		Layer 4			
DATE RECEIVED	04.08.18		04.08.18			
CLIENTS MARKING	None		None			
DESCRIPTION OF SAMPLE (COLOUR & TYPE)	Dark Olive Hornfels Gravel		Dark Brown Sand			
REDUCTION FACTOR / RF CHECK	0,0583		1,0000			
	0,07	< 1%	0,12	< 1%		
SIEVE ANALYSIS (mm) SANS 3001 GR1	100,0	100	100			
	75,0	100	100			
	63,0	100	100			
	53,0	100	100			
	37,5	100	100-100	100	-	
	28,0	88	84-94	100	-	
	20,0	71	71-84	100	-	
	14,0	60	59-75	100	-	
	5,00	36	36-53	100	-	
	2,00	28	23-40	100	-	
	0,425	19	11-24	79	-	
	0,075	6	4-12	1	-	
ATTERBERG LIMITS SANS 3001 GR10, GR12	LL%	NP	≤ 25	NP	≤ 7	
	P.I.	NP	≤ 6	NP	≤ 12	
	LS%	0.0	≤ 3	0.0	-	
	GM	2,46	-	1,18	2.7≥ GM ≥ 0.75	
SOIL-MORTAR PERCENTAGES SANS 3001 PR5	Coarse sand	31		20		
	Fine sand	46		77		
	Coarse fine sand	17		36		
	Medium fine sand	18		29		
	Fine fine sand	11		12		
	Silt and clay	23		1		
	Coarse sand ratio	0,3		0,2		
MOD AASHTO SANS 3001 GR30	OMC%	6,1		9,6		
	MDD(KG/M ³)	2275		1752		
C.B.R. SANS 3001 GR40	COMP MC	5,7		9,3		
	% SWELL	0.0	< 0.2	0.0	1,50	
	100%	150	-	15	-	
	98%	110	80	12	-	
	97%	90	-	10	-	
	95%	66	-	9	-	
	93%	46	-	7	7	
	90%	29	-	5	-	
Electrical Conductivity TMH1 A21T*						
pH Value TMH1 A20*						
REMARKS / NOTES						

NOTE: All tests marked with (*) means that those test methods are not accredited.

Erika Drive Test Pit 6-R – Location: Existing
Road Surface

Client: **ITS Engineers**
Project: Erica Rd
Attention: Mr Wilhelm de Klerk
Your Ref. No: -
Date Reported: Wednesday, 15 August 2018

TEST REPORT REFERENCE NUMBER / JOB NUMBER :

SWL01227

Dear Sir / Madam

Herewith please find the original reports pertaining to the above mentioned project.

Stake Value:

TP6-R

Test Requested

3x MDD / CBR /IND
1x 1m DCP

Site Sampling and Materials Information

Sampling Method: TMH5 Method MC1
Environmental Condition: Moderate

FINAL REPORT

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STEYN-WILSON LABORATORIES (PTY) LTD

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Mr. R Wilson
Technical Signatory



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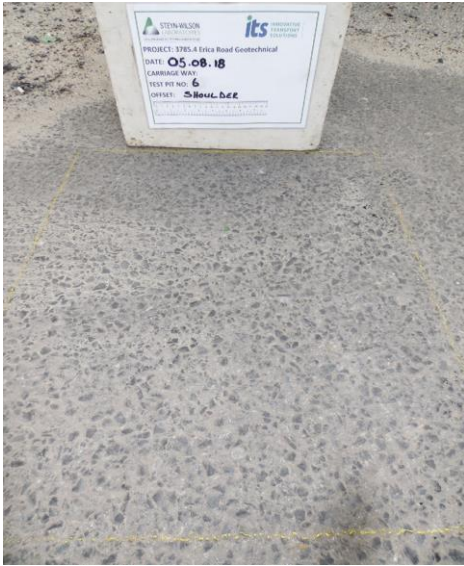
JOB NO: SWL01227 **Ref.:** - **DATE:** 15-Aug-18

Client	ITS Engineers	Project:	Erica Rd
	Carl Cronje Drive	Site / Road:	Erica Rd
	Bellville	Stake Value:	TP6-R
	7530	Test Hole No:	TP6-R
		Side Walls	Stable
Attention:	Mr Wilhelm de Klerk	Excavation Method	Pick & Shovel & Breaker
GPS / WGS84	3394139 01864758	Refusal	None
		Water table	None
Sampling Method	TMH5 Method MC1	Environmental Condition	Sunny and Hot with Wind

SOIL PROFILE - GRONDPROFIEL

DEPTH (mm)	PROFILE	DESCRIPTION	SAMPLE No.
0			
0-30 (30)		Black, Asphalt W/C	-
30-280 (250)		Sl. Moist, Dark Grey, Dense, Silty Sandy fine to coarse sub-angular Hornfels GRAVEL, Intact, Imported (HCL+)(Phen-)	2576
280-450 (170)		Sl. Moist, Dark olive Brown, Medium Dense, Silty Sandy fine to medium Shale GRAVEL, Intact, Imported (HCL+)(Phen-)	2577
450-1000 (550)		Sl. Moist, Light yellowish Brown, Medium Dense, Silty fine to medium grain SAND, Intact, Insitu (HCL+)(Phen-)	2579

Surface Visual



Profile



Spoils





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JOB No: SWL01227 **Ref. No:** - **Date:** 15 August 2018

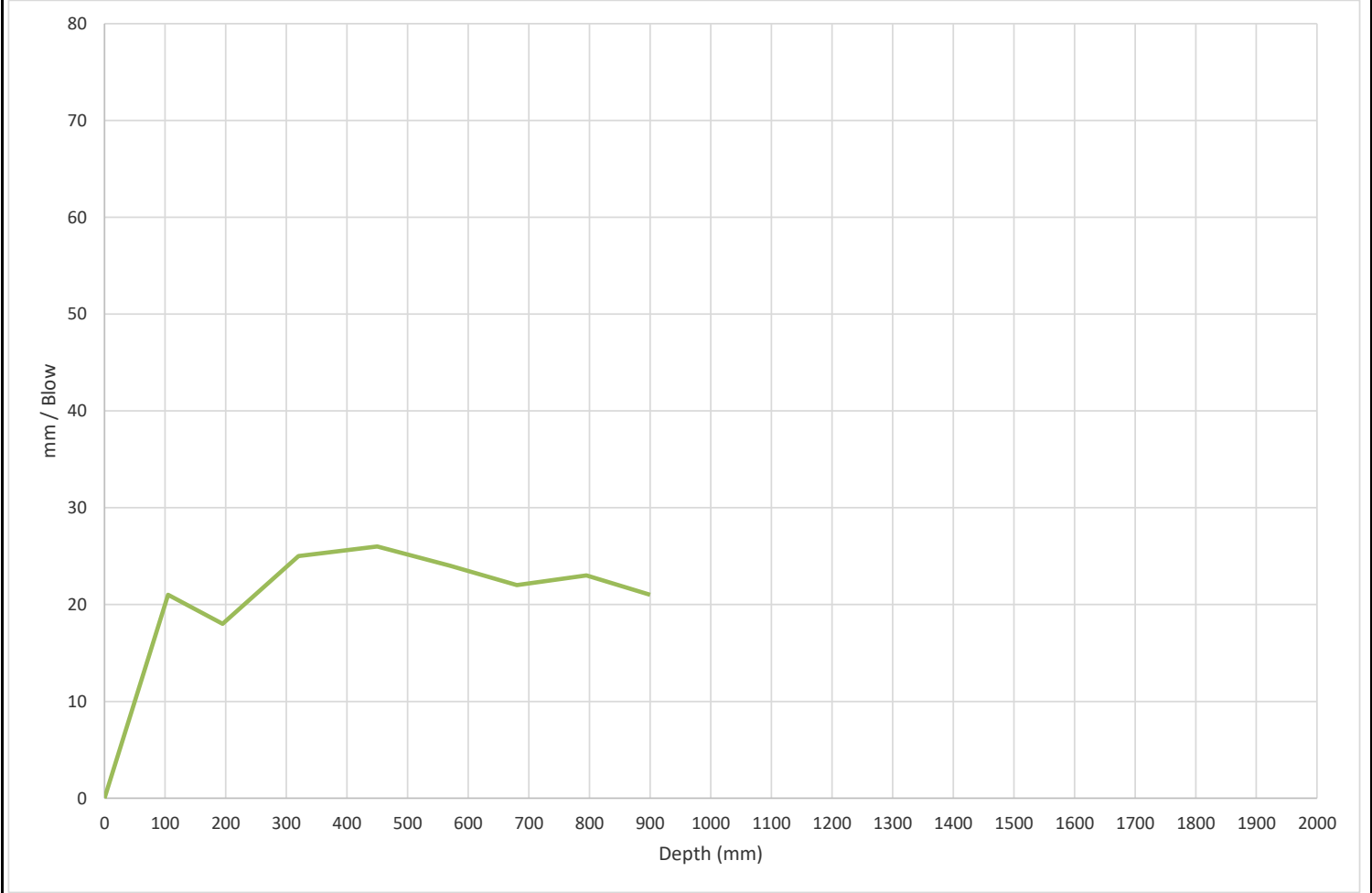
Client ITS Engineers
Carl Cronje Drive
Bellville
7530
Attention: Mr Wilhelm de Klerk

DYNAMIC CONE PENETROMETER TMH6 ST6

PROJECT:	Erica Rd	LEVEL:	1.0m Bottom of TP
TEST POSITION:	TP6-R	FOUNDATION:	-
TEST DEPTH:	1m	STARTING DEPTH:	190mm
MATERIAL TYPE:	Sandy Materials	Max. penetration depth:	900mm
CONSTRUCTION TYPE:	Road Construction	REFUSAL:	None
INSTRUMENT (DCP) SET No:	BT2-0003	NOB/TEST:	5

Number of Blows	Depth (mm)	Corrective Depth (mm)	Penetration Tempo	Structure Nr. (dn) mm/blow
0	190	0		
5	295	105	105	21
10	385	195	90	18
15	510	320	125	25
20	640	450	130	26
25	760	570	120	24
30	870	680	110	22
35	985	795	115	23
40	1090	900	105	21

GRAPHICAL REPRESENTATION / DYNAMIC CONE PENETROMETER TMH6 ST6



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CIVIL ENGINEERING TESTING LABORATORIES

JOB NO: SWL01227 **Your Ref** - **Date** 15 August 2018

ITS Engineers
Carl Cronje Drive
Bellville
7530

PROJECT: Erica Rd

ATTENTION: Mr Wilhelm de Klerk

TMH5 MD1, MD2 / SANS 3001 GR1, PR5, GR10, GR12, GR30, GR40

The unambiguous description of the sample/s as received are as follows :

SAMPLE No.	2576	SPEC	2577	SPEC	2579	SPEC	
HOLE No. / SV. / CHAINAGE	TP6		TP6		TP6		
ROAD No. OR NAME	Erica Road		Erica Road		Erica Road		
LAYER TESTED / SAMPLED FROM	Layer 2		Layer 3		Layer 4		
DATE RECEIVED	05.08.18		05.08.18		05.08.18		
CLIENTS MARKING	None		None		None		
DESCRIPTION OF SAMPLE (COLOUR & TYPE)	Dark Grey Hornfels Gravel	G4 (37.5mm)	Dark Olive Brown Gravel	G6	Dark Yellowish Orange Sand	G9	
REDUCTION FACTOR / RF CHECK	0,0624		0,0501		1,0000		
	0,06	< 1%	0,07	< 1%	0,07	< 1%	
SIEVE ANALYSIS (mm) SANS 3001 GR1	100,0	100	100		100		
	75,0	100	100		100		
	63,0	100	100		100		
	53,0	100	100		100		
	37,5	100	100-100	100	-	100	-
	28,0	94	84-94	100	-	100	-
	20,0	80	71-84	93	-	100	-
	14,0	70	59-75	79	-	100	-
	5,00	40	36-53	47	-	100	-
	2,00	28	23-40	38	-	100	-
	0,425	18	11-24	29	-	86	-
	0,075	6	4-12	1	-	3	-
ATTERBERG LIMITS SANS 3001 GR10, GR12	LL%	NP	≤ 25	25,3	-	NP	≤ 7
	P.I.	NP	≤ 6	9,9	≤ 12	NP	≤ 12
	LS%	0.0	≤ 3	4,5	≤ 5	0.0	-
	GM	2,48	-	2,19	2.6≥ GM ≥ 1.2	1,12	2.7≥ GM ≥ 0.75
SOIL-MORTAR PERCENTAGES SANS 3001 PR5	Coarse sand	34		24		14	
	Fine sand	45		40		83	
	Coarse fine sand	11		15		27	
	Medium fine sand	21		14		44	
	Fine fine sand	13		11		12	
	Silt and clay	22		1		3	
	Coarse sand ratio	0,3		0,2		0,1	
MOD AASHTO SANS 3001 GR30	OMC%	5,4		6,1		10,2	
	MDD(KG/M ³)	2279		2221		1721	
C.B.R. SANS 3001 GR40	COMP MC	5,1		5,8		9,8	
	% SWELL	0.0	< 0.2	0,23	1,00	0.0	1,50
	100%	100	-	54	-	30	-
	98%	80	80	40	-	22	-
	97%	70	-	35	-	19	-
	95%	60	-	27	25	14	-
	93%	50	-	20	-	9	7
90%	39	-	14	-	6	-	
Electrical Conductivity TMH1 A21T*							
pH Value TMH1 A20*							
REMARKS / NOTES							

NOTE: All tests marked with (*) means that those test methods are not accredited.