PRO DRILL (AUCK) LTD Calibrations

PRO-DRILL

SPT Hammer Calibration - CAT 308

Date Calibrated - 7th February 2025

PRO-DRILL (AUCK) LTD

Case Method & iCAP® Results

CAT 308 AUTO HAMMER - 10_2 YARD TEST HOLE
OP: SCOTT Date: 07-February-2025

AR: 1.81 in² SP: 0.492 k/ft³
LE: 32.81 ft EM: 30,000 ksi
WS: 16,807.9 f/s JC: 0.90

CSX: Compression Stress Maximum
DMX: Maximum Displacement
EFV: Maximum Energy
ETR: Energy Transfer Ratio - Rated
BPM: Blows/Minute
RAT: Length Ratio for SPT
VMX: Maximum Velocity
FMX: Maximum Force
DFN: Final Displacement

BL#	Depth ft	BLC bl/ft	CSX ksi	DMX in	EFV ft-lb	ETR (%)	BPM bpm	RAT	VMX f/s	FMX kips	DFN in
2	0.00	0	22.8	2.31	309.7	88.5	29.2	1.3	15.7	41	2.31
3	0.00	0	21.9	2.05	299.0	85.4	29.2	1.3	15.5	40	2.05
4	0.00	0	22.2	1.68	308.4	88.1	29.3	1.3	15.6	40	1.68
5	0.00	0	22.1	1.52	311.1	88.9	29.0	1.3	15.3	40	1.52
6	0.00	0	21.7	1.30	305.0	87.1	29.0	1.3	15.1	39	1.30
7	0.00	0	21.6	1.17	306.8	87.6	28.9	1.3	15.0	39	1.17
8	0.00	0	21.6	1.03	308.1	88.0	28.9	1.3	15.0	39	1.03
9	0.00	0	21.7	0.99	309.4	88.4	28.8	1.3	14.9	39	0.99
10	0.00	0	21.2	0.75	303.9	86.8	28.8	1.3	14.5	38	0.73
11	0.00	0	21.2	0.78	308.6	88.2	28.8	1.3	14.4	38	0.78
12	0.00	0	21.0	0.71	305.2	87.2	28.8	1.3	14.2	38	0.71
13	0.00	0	21.4	0.64	311.2	88.9	28.8	1.3	14.2	39	0.63
14	0.00	0	21.2	0.63	307.2	87.8	28.7	1.3	14.1	38	0.63
15	0.00	0	20.8	0.52	307.6	87.9	28.7	1.3	14.1	38	0.44
16	0.00	0	21.3	0.65	312.3	89.2	28.7	1.3	14.0	38	0.62
17	0.00	0	21.0	0.41	310.9	88.8	28.8	1.3	13.7	38	0.30
18	0.00	0	20.9	0.39	313.9	89.7	28.7	1.3	13.2	38	-0.33
19	0.00	0	21.1	0.38	313.4	89.5	28.6	1.3	12.9	38	-0.34
20	0.00	0	21.2	0.40	317.6	90.7	28.7	1.3	13.1	38	0.40
21	0.00	0	21.2	0.38	315.2	90.1	28.7	1.3	13.3	38	-0.72
22	0.00	0	21.0	0.38	312.5	89.3	28.7	1.3	13.3	38	0.35
23	0.00	0	21.2	0.48	312.1	89.2	28.6	1.3	13.5	38	0.48
24	0.00	0	20.8	0.38	310.9	88.8	28.6	1.3	13.4	38	0.28
25	0.00	0	21.2	0.42	312.8	89.4	28.5	1.3	13.6	38	0.42
		Average	21.4	0.85	309.7	88.5	28.8	1.3	14.2	39	0.73

Total number of blows analyzed: 24

BL# Sensors

2-25 F1: [468BW1] 210.8 (1.00); F2: [468BW2] 210.4 (1.00); A3: [K5608] 306.2 (1.00); A4: [K5724] 330.4 (1.00)

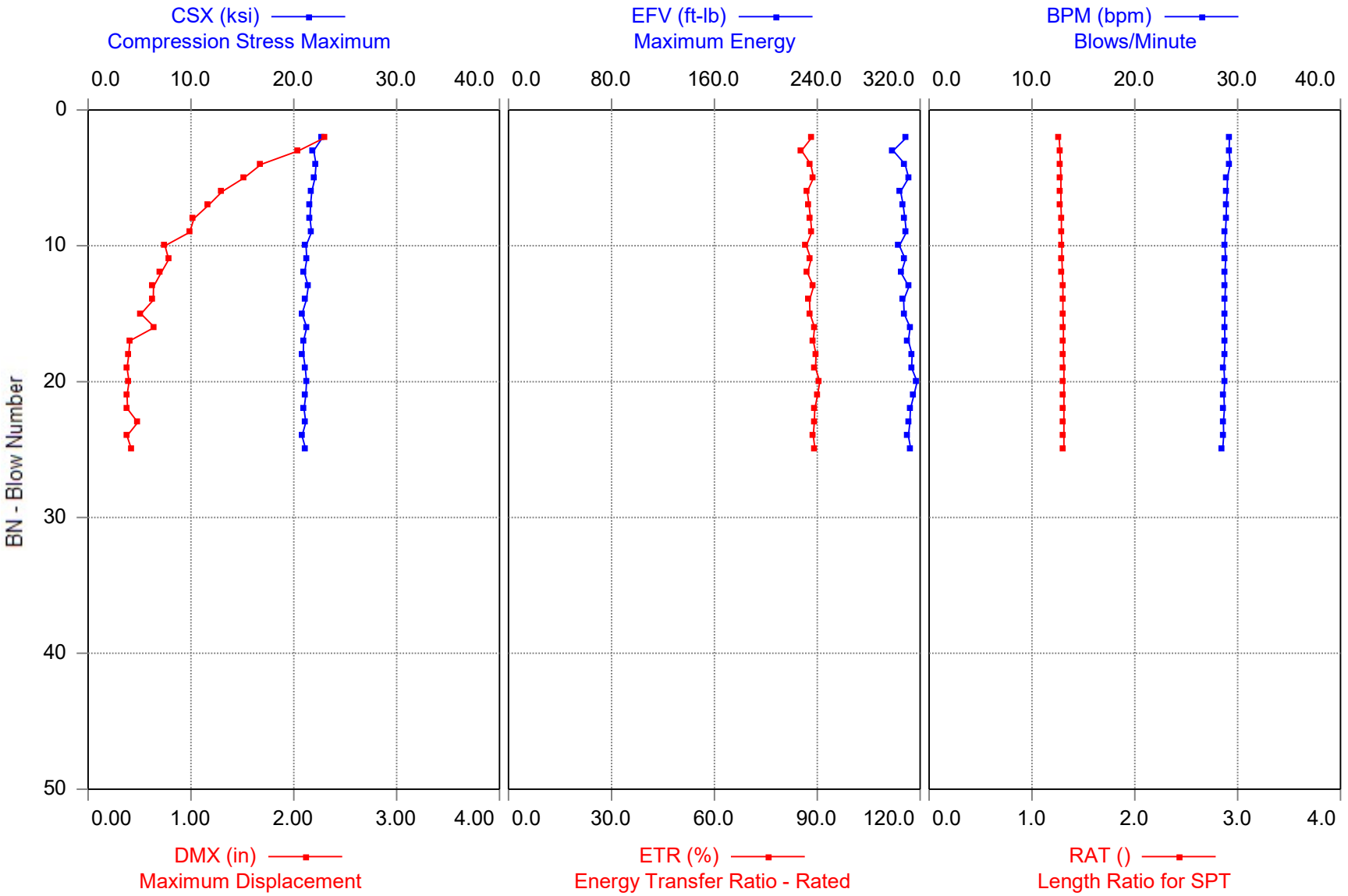
Time Summary

Drive 49 seconds 2:00 pm - 2:01 pm BN 1 - 25

GRL Engineers, Inc. - PDIPLOT2 Ver 2021.1.61.0 - Case Method & iCAP® Results

Printed: 07-February-2025 Test started: 07-February-2025

CAT 308 AUTO HAMMER - 10_2



Certificate of Calibration

EMP Piletec Pty Ltd Certifies that the

SPT Analyzer
Serial Number 4508 TB

was calibrated on 7th June 2023
using a PDA calibration box (Serial No.: 1010SA) whose output was calibrated
with test equipment traceable to NIST

This certificate is valid for 2 years from the above date

EMP

Certificate Number: EMP/PDA/45/23

EMP Piletec Pty Ltd
A Pile Dynamics, Inc. Authorized Representative
20 Larch Street, Blackburn, Victoria 3130, Australia

Accelerometer Calibration Certificate
Pile Dynamics, Inc.

Calibrated by EMP Piletec
Calibration performed on 15May2023

Serial No:	K5724	**Temperature:**	71.6 °F
Model:	PR	**Humidity:**	35%
Calibrated on:	Channel 4 on 8G 4588 LE		

Ref Acc 1:	72509! 1032 g's/volt	**Cal on:**	03Feb2022
Ref Acc 2:	72503! 1031 g's/volt	**Cal on:**	02Feb2022

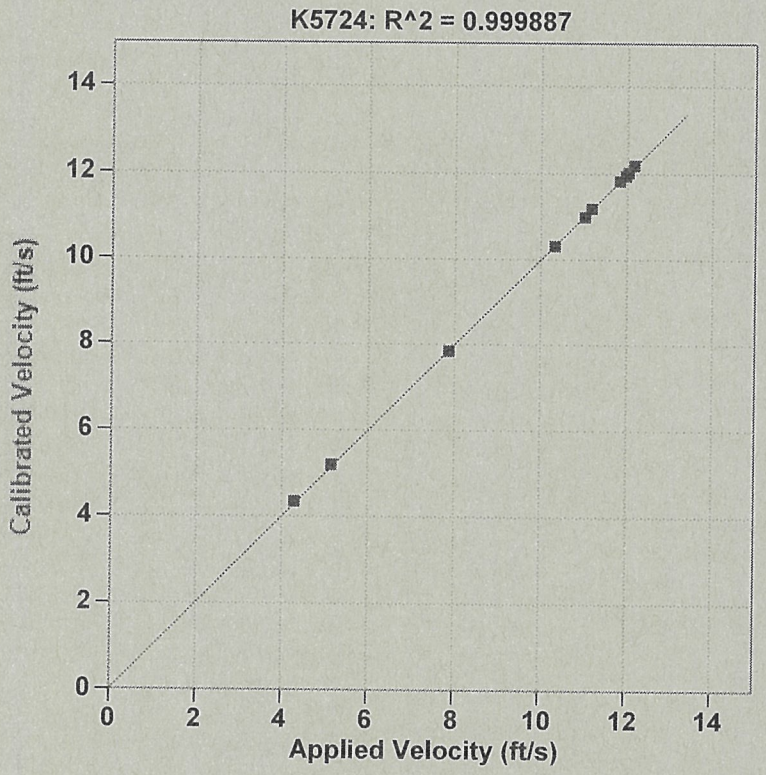
Reference accelerometer calibrations are traceable to the United States National Institute of Standards and Technology (NIST).

PDA CALIBRATION FACTOR

330.4 mv/5000g
(66.1 µv/g)
R^2: 0.999887 [Chip programmed]

Operator: Richard

Signed



Reference Velocity	S/N K5724 Velocity
ft/s	ft/s
4.295	4.349
5.148	5.201
7.866	7.842
10.326	10.309
11.017	10.987
11.176	11.186
11.828	11.825
11.967	11.947
12.030	12.030
12.163	12.191

Maximum Acceleration: 759 g's

Accelerometer Calibration Certificate
Pile Dynamics, Inc.

Calibrated by EMP Piletec
Calibration performed on 15May2023

Serial No:	K5608	**Temperature:**	71.6 °F
Model:	PR	**Humidity:**	35%
Calibrated on:	Channel 3 on 8G 4588 LE		

Ref Acc 1:	72509! 1032 g's/volt	**Cal on:**	03Feb2022
Ref Acc 2:	72503! 1031 g's/volt	**Cal on:**	02Feb2022

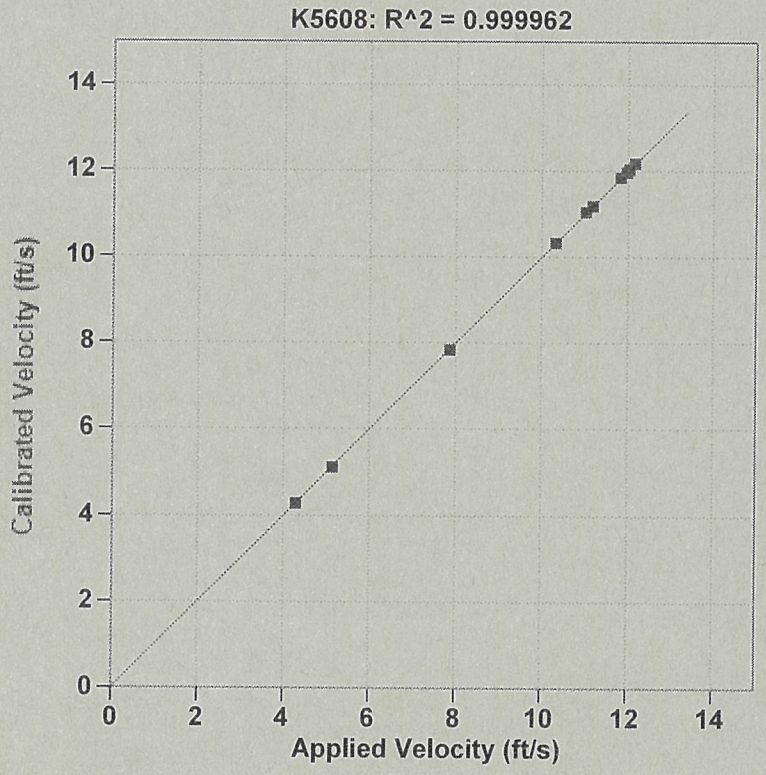
Reference accelerometer calibrations are traceable to the United States National Institute of Standards and Technology (NIST).

PDA CALIBRATION FACTOR

306.2 mv/5000g
(61.2 µv/g)
R^2: 0.999962 [Chip programmed]

Operator: Richard

Signed



Reference Velocity	S/N K5608 Velocity
ft/s	ft/s
4.295	4.287
5.148	5.114
7.866	7.832
10.326	10.317
11.017	11.031
11.176	11.178
11.828	11.841
11.967	11.967
12.030	12.040
12.163	12.173

Maximum Acceleration: 759 g's

PRO-DRILL

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Franklin, New Zealand
kris@prodrill.co.nz or kane@prodrill.co.nz

PRO DRILL (AUCK) LTD Calibrations

PRO-DRILL

SPT Hammer Calibration - SRS ML 02

Date Calibrated - 11th February 2025

PRO-DRILL (AUCK) LTD

Case Method & iCAP® Results

ML 2 AUTO HAMMER - 19.5 YARD TEST HOLE
OP: SCOTT Date: 11-February-2025

AR: 1.81 in² SP: 0.492 k/ft³
LE: 32.81 ft EM: 30,000 ksi
WS: 16,807.9 f/s JC: 0.90

CSX: Compression Stress Maximum RAT: Length Ratio for SPT
DMX: Maximum Displacement VMX: Maximum Velocity
EFV: Maximum Energy FMX: Maximum Force
ETR: Energy Transfer Ratio - Rated DFN: Final Displacement
BPM: Blows/Minute

BL#	Depth	BLC	CSX	DMX	EFV	ETR	BPM	RAT	VMX	FMX	DFN
	ft	bl/ft	ksi	in	ft-lb	(%)	bpm		f/s	kips	in
2	0.00	0	23.4	1.11	283.5	81.0	36.4	2.0	12.3	42	1.08
3	0.00	0	23.8	1.00	279.0	79.7	36.1	2.0	12.4	43	0.99
4	0.00	0	23.6	0.90	271.3	77.5	36.3	2.0	12.5	43	0.83
5	0.00	0	23.3	0.96	279.6	79.9	36.3	2.0	12.5	42	0.95
6	0.00	0	22.9	0.96	283.5	81.0	36.2	2.0	12.7	41	0.96
7	0.00	0	23.3	0.86	272.7	77.9	36.2	2.0	12.3	42	0.85
8	0.00	0	22.9	0.78	280.0	80.0	36.0	2.3	12.3	42	0.71
9	0.00	0	23.0	0.74	282.1	80.6	36.3	2.0	12.2	42	0.65
10	0.00	0	22.8	0.73	283.4	81.0	36.3	2.0	12.5	41	0.73
11	0.00	0	23.0	0.81	286.7	81.9	36.3	2.0	12.3	42	0.81
12	0.00	0	22.2	0.73	280.5	80.1	36.2	2.0	12.3	40	0.68
13	0.00	0	22.7	0.70	278.8	79.7	36.2	2.0	12.1	41	0.68
14	0.00	0	22.7	0.62	283.8	81.1	36.1	2.0	12.8	41	0.53
15	0.00	0	22.7	0.60	281.0	80.3	36.2	2.0	12.1	41	0.48
16	0.00	0	22.3	0.58	275.2	78.6	36.3	2.2	12.1	40	0.53
17	0.00	0	23.2	0.57	289.9	82.8	36.1	1.3	12.5	42	0.55
18	0.00	0	22.3	0.57	287.0	82.0	36.4	2.0	12.1	40	0.48
19	0.00	0	22.4	0.62	291.2	83.2	36.2	2.0	12.6	41	0.62
20	0.00	0	22.9	0.56	283.5	81.0	36.2	2.3	12.1	41	0.54
21	0.00	0	22.3	0.60	289.4	82.7	36.2	2.2	12.4	40	0.59
22	0.00	0	23.1	0.52	292.8	83.7	36.4	2.2	13.0	42	0.44
23	0.00	0	23.0	0.52	289.3	82.6	36.2	2.2	12.6	42	0.40
24	0.00	0	23.6	0.53	287.3	82.1	36.3	2.2	12.6	43	0.49
25	0.00	0	22.5	0.48	281.8	80.5	36.3	2.3	12.6	41	0.28
26	0.00	0	22.8	0.47	285.2	81.5	36.3	2.0	13.1	41	0.37
27	0.00	0	23.1	0.52	282.2	80.6	36.3	2.2	12.9	42	0.52
28	0.00	0	23.2	0.46	286.3	81.8	36.2	2.2	13.2	42	0.44
29	0.00	0	23.3	0.46	289.9	82.8	36.2	2.2	13.4	42	0.45
30	0.00	0	23.2	0.53	285.5	81.6	36.2	2.3	12.5	42	0.53
31	0.00	0	22.9	0.46	286.5	81.9	36.3	2.2	13.0	42	0.40
32	0.00	0	23.8	0.44	285.5	81.6	36.2	2.2	13.2	43	0.25
		Average	23.0	0.66	283.7	81.1	36.2	2.1	12.6	42	0.61

Total number of blows analyzed: 31

BL# Sensors

2-32 F1: [468BW1] 210.8 (1.00); F2: [468BW2] 210.4 (1.00); A3: [K5608] 306.2 (1.00); A4: [K5724] 330.4 (1.00)

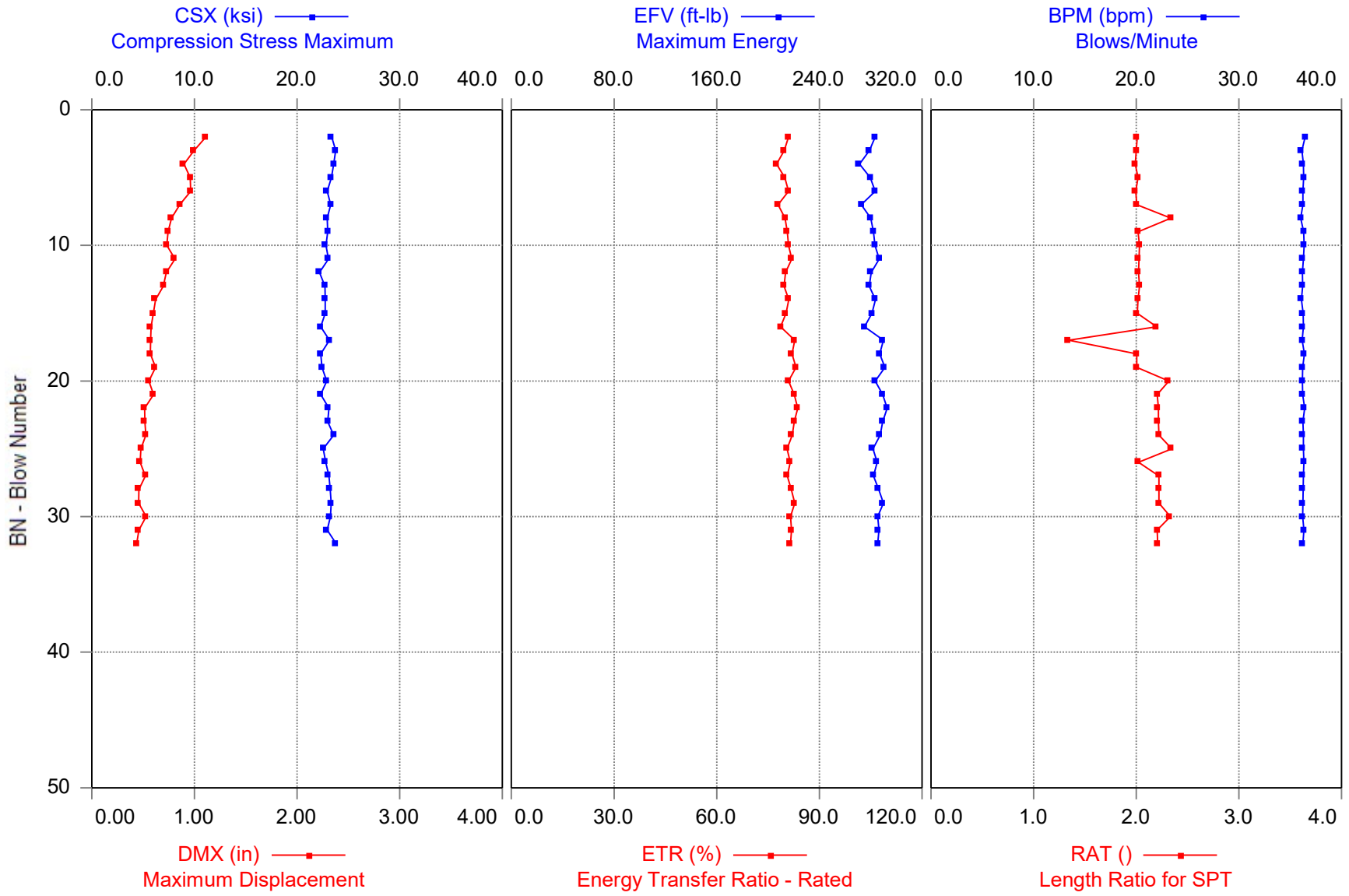
Time Summary

Drive 51 seconds 9:52 am - 9:53 am BN 1 - 32

GRL Engineers, Inc. - PDIPLOT2 Ver 2021.1.61.0 - Case Method & iCAP® Results

Printed: 19-February-2025 Test started: 11-February-2025

ML 2 AUTO HAMMER - 19.5




SRS ML DUO
FRASTE Eijkelkamp

Certificate of Calibration

EMP Piletec Pty Ltd Certifies that the

SPT Analyzer
Serial Number 4508 TB

was calibrated on 7th June 2023
using a PDA calibration box (Serial No.: 1010SA) whose output was calibrated
with test equipment traceable to NIST

This certificate is valid for 2 years from the above date

EMP

Certificate Number: EMP/PDA/45/23

EMP Piletec Pty Ltd
A Pile Dynamics, Inc. Authorized Representative
20 Larch Street, Blackburn, Victoria 3130, Australia

Accelerometer Calibration Certificate
Pile Dynamics, Inc.

Calibrated by EMP Piletec
Calibration performed on 15May2023

Serial No:	K5724	**Temperature:**	71.6 °F
Model:	PR	**Humidity:**	35%
Calibrated on:	Channel 4 on 8G 4588 LE		

Ref Acc 1:	72509! 1032 g's/volt	**Cal on:**	03Feb2022
Ref Acc 2:	72503! 1031 g's/volt	**Cal on:**	02Feb2022

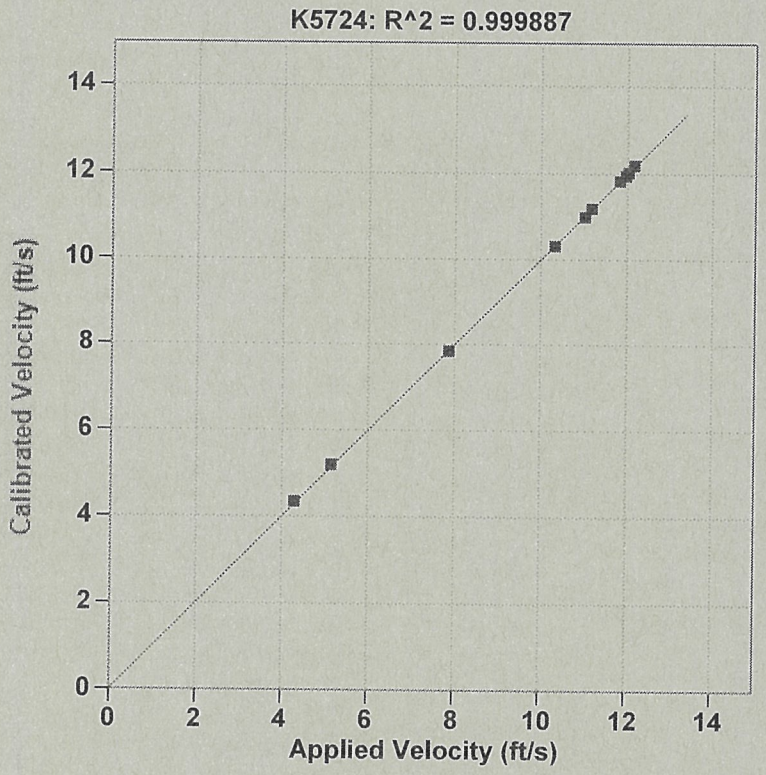
Reference accelerometer calibrations are traceable to the United States National Institute of Standards and Technology (NIST).

PDA CALIBRATION FACTOR

330.4 mv/5000g
(66.1 µv/g)
R^2: 0.999887 [Chip programmed]

Operator: Richard

Signed



Reference Velocity	S/N K5724 Velocity
ft/s	ft/s
4.295	4.349
5.148	5.201
7.866	7.842
10.326	10.309
11.017	10.987
11.176	11.186
11.828	11.825
11.967	11.947
12.030	12.030
12.163	12.191

Maximum Acceleration: 759 g's

Accelerometer Calibration Certificate
Pile Dynamics, Inc.

Calibrated by EMP Piletec
Calibration performed on 15May2023

Serial No:	K5608	**Temperature:**	71.6 °F
Model:	PR	**Humidity:**	35%
Calibrated on:	Channel 3 on 8G 4588 LE		

Ref Acc 1:	72509! 1032 g's/volt	**Cal on:**	03Feb2022
Ref Acc 2:	72503! 1031 g's/volt	**Cal on:**	02Feb2022

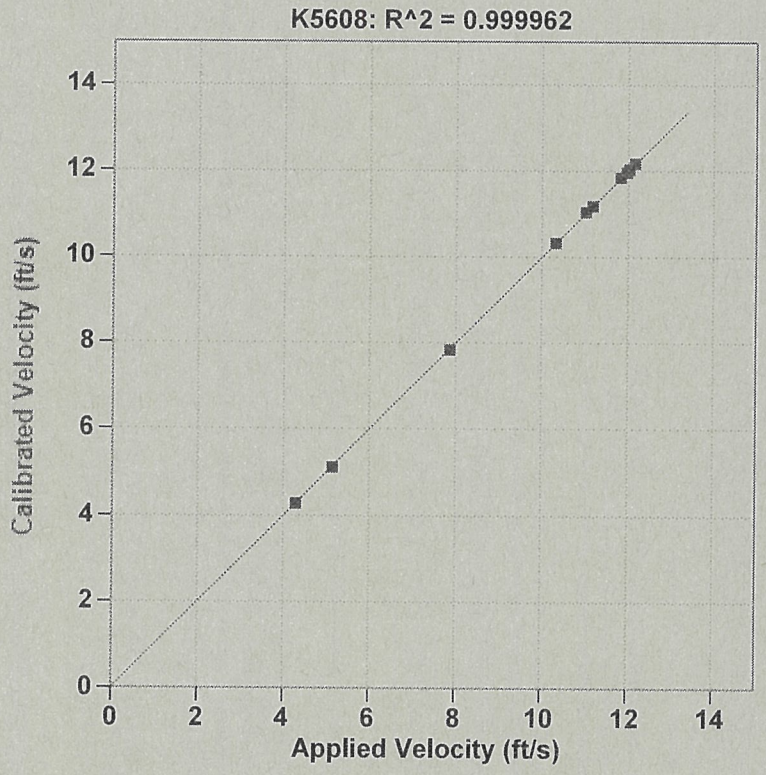
Reference accelerometer calibrations are traceable to the United States National Institute of Standards and Technology (NIST).

PDA CALIBRATION FACTOR

306.2 mv/5000g
(61.2 µv/g)
R^2: 0.999962 [Chip programmed]

Operator: Richard

Signed



Reference Velocity	S/N K5608 Velocity
ft/s	ft/s
4.295	4.287
5.148	5.114
7.866	7.832
10.326	10.317
11.017	11.031
11.176	11.178
11.828	11.841
11.967	11.967
12.030	12.040
12.163	12.173

Maximum Acceleration: 759 g's

PRO-DRILL

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Canterbury, New Zealand
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Fax: +64 3 324 2431

STANDARD PENETRATION TEST (SPT) HAMMER ENERGY MEASUREMENT CERTIFICATE

Certificate: N102-20240503 Standard: ASTM D4633-10
Date: 3/5/2024

Geotechnical hammer

Type:	Safety Auto	Maker:	Hanjin	Mass:	63.5kg
Anvil dimensions: 90mm OD,240mm long				Drop height:	760mm
Notes:					

Hammer ID: N102

Instrumented rod

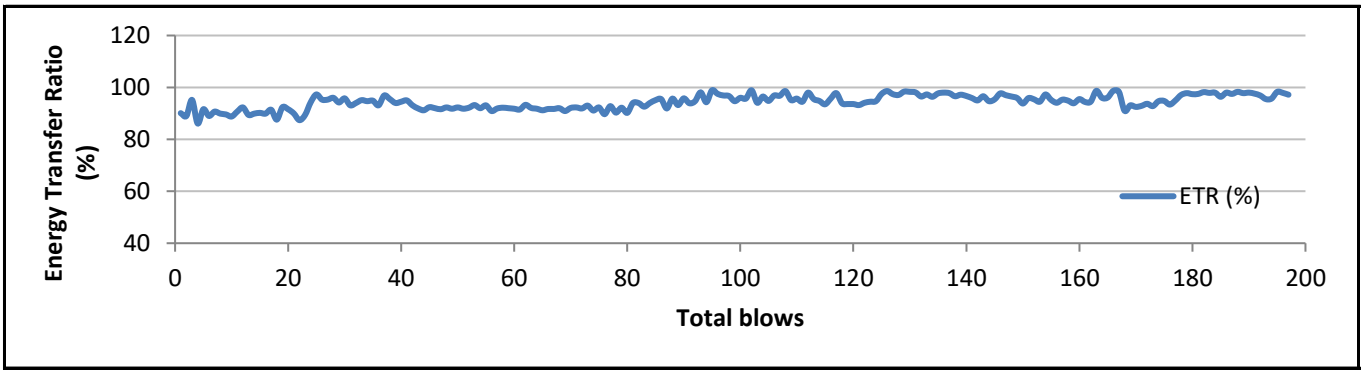
Serial:	346AWJ	Type:	AWJ	Maker:	Pile Dynamics, Inc.	Area:	7.70cm²
Outer diameter:	44.5mm	Inner diameter:	15.9mm	Calibration date:	10/3/2023		
Strain sensor F3:	346AWJ-1	Strain sensor F4:	346AWJ-2	Calibration date:	10/3/2023		
Accelerometer A3:	-	Accelerometer A4:	K10904	Calibration date:	9/3/2023		

Processing equipment

Model:	PDA, SPT Analyzer	Maker:	Pile Dynamics, Inc.	Calibration Date:	13/12/2018
Serial:	4077 TA	Sample size:	8k	Sample frequency:	100kHz

Tests

Job No. - Location	Testing site - Sweetcorn Place, Pukekohe				
Test No.	1	2	3	4	5
Borehole	BH001	BH001	BH001	BH001	BH01
Test date	3/5/2024	3/5/2024	3/5/2024	3/5/2024	3/5/2024
Test time	11:33 am	12:18 pm	12:42 pm	1:04 pm	1:31 pm
Depth below ground level (LP)	6.70m	11.30m	12.70m	14.20m	15.70m
Depth below sensors (LE)	8.25m	12.85m	14.20m	15.60m	17.00m
No. blows	23	52	50	42	30
Average measured blows per minute	22.5	20.2	44.8	41.1	37.4
Average hammer energy efficiency:	90.1%	93.0%	94.9%	96.4%	96.1%



Total blows analysed	197	Average hammer energy efficiency	94.3%
Standard deviation	2.7		

Tested by: Jeremy Cain Signature:

Checked by: Greg Cossar Signature:

McMillan Drilling Ltd
admin@drilling.co.nz
www.drilling.co.nz
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Canterbury, New Zealand
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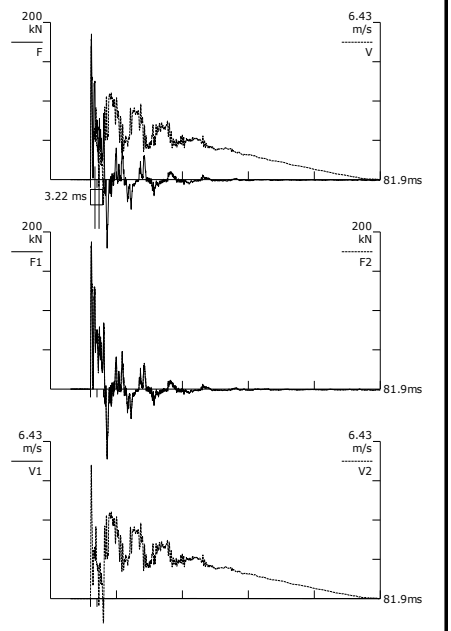
STANDARD PENETRATION TEST (SPT) HAMMER ENERGY MEASUREMENT CERTIFICATE

Certificate: N102-20240503 Standard: ASTM D4633-10

Date: 3/5/2024

Representative reports

Test 1



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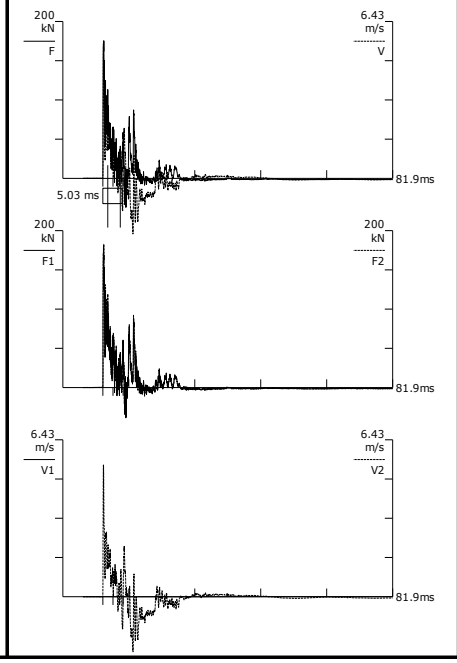
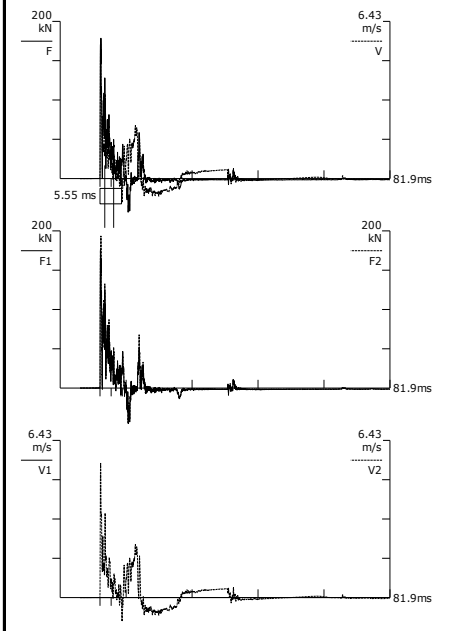


Test 3



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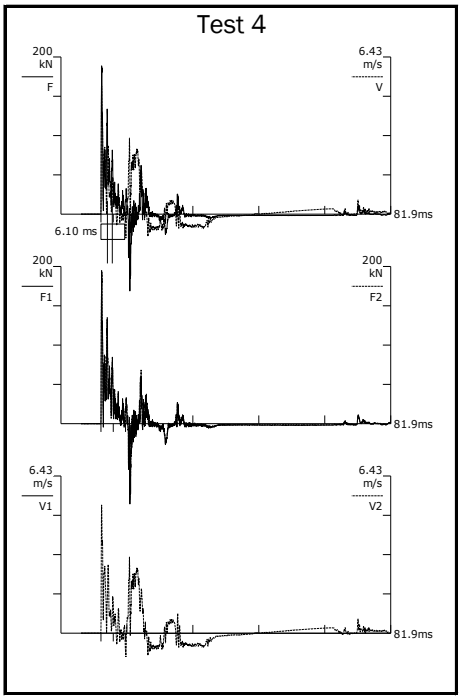
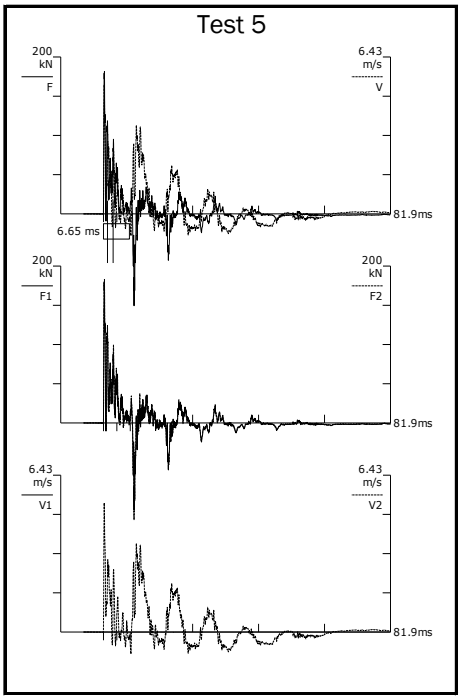


Test 5



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Phone: +64 3 324 2571
Fax: +64 3 324 2431

STANDARD PENETRATION TEST (SPT) HAMMER ENERGY MEASUREMENT CERTIFICATE

Certificate: N103-20240501 Standard: ASTM D4633-10
Date: 1/5/2024

Geotechnical hammer

Type:	Safety Auto	Maker:	Hanjin	Mass:	63.5kg	Hammer ID:	N103
Anvil dimensions: 90mm OD, 240mm long				Drop height:	760mm		
Notes:							

Instrumented rod

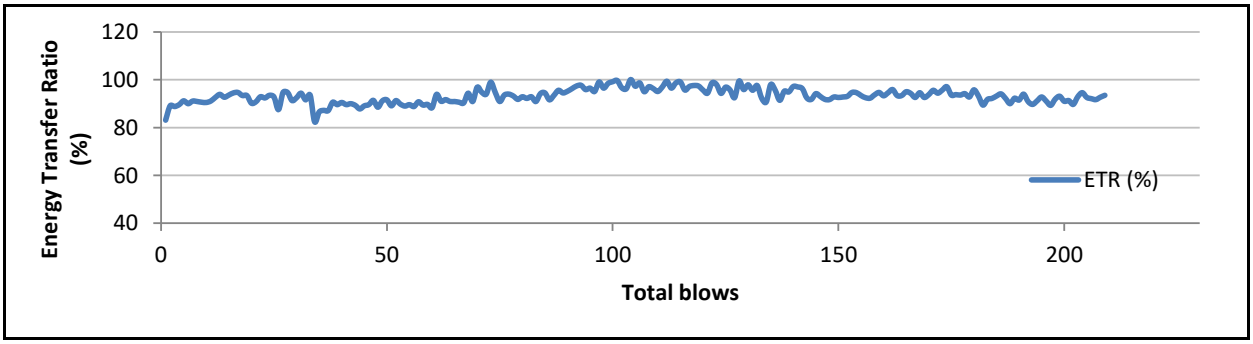
Serial:	346AWJ	Type:	AWJ	Maker:	Pile Dynamics, Inc.	Area:	7.70cm²
Outer diameter:	44.5mm	Inner diameter:	15.9mm	Calibration date:	10/3/2023		
Strain sensor F3:	346AWJ-1	Strain sensor F4:	346AWJ-2	Calibration date:	10/3/2023		
Accelerometer A3:	-	Accelerometer A4:	K10904	Calibration date:	9/3/2023		

Processing equipment

Model:	PDA, SPT Analyzer	Maker:	Pile Dynamics, Inc.	Calibration Date:	13/12/2018
Serial:	4077 TA	Sample size:	8k	Sample frequency:	100kHz

Tests

Job No. - Location	Testing site - Sweetcorn Place, Pukekohe				
Test No.	1	2	3	4	5
Borehole	BH001	BH001	BH001	BH001	BH001
Test date	1/5/2024	1/5/2024	1/5/2024	1/5/2024	1/5/2024
Test time	11:32 am	12:49 pm	2:03 pm	3:11 pm	3:40 pm
Depth below ground level (LP)	4.60m	7.50m	9.00m	10.50m	12.00m
Depth below sensors (LE)	6.25m	9.00m	10.55m	12.10m	13.60m
No. blows	25	35	29	52	68
Average measured blows per minute	22.9	22.1	23.9	19.6	19.6
Average hammer energy efficiency:	91.5%	89.9%	93.1%	96.6%	93.0%



Total blows analysed	209	Average hammer energy efficiency	93.2%
Standard deviation	3.0		

Tested by: Rahul Negi Signature: _____

Checked by: Greg Cossar Signature: _____

McMillan Drilling Ltd
admin@drilling.co.nz
www.drilling.co.nz
120 High Street
Southbridge 7602
Canterbury, New Zealand
Phone: +64 3 324 2571
Fax: +64 3 324 2431

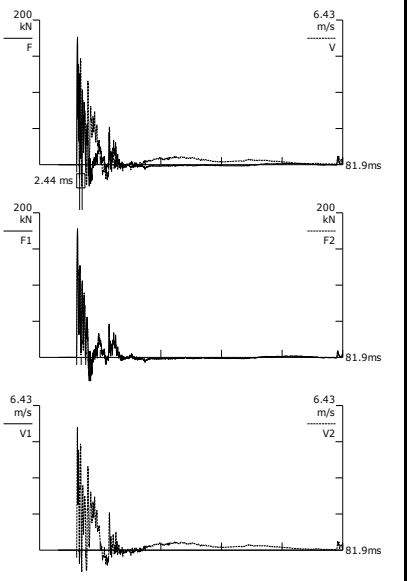
STANDARD PENETRATION TEST (SPT) HAMMER ENERGY MEASUREMENT CERTIFICATE

Certificate: N103-20240501 Standard: ASTM D4633-10

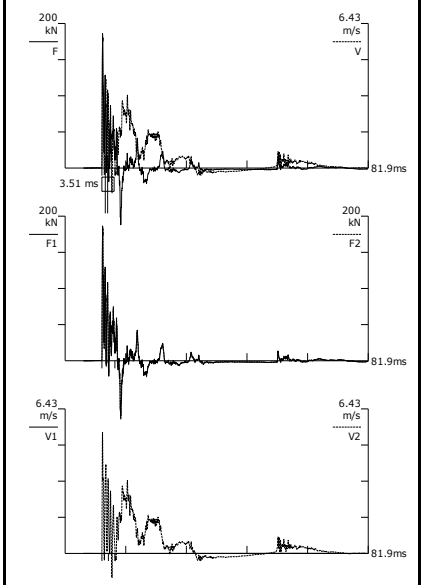
Date: 1/5/2024

Representative reports

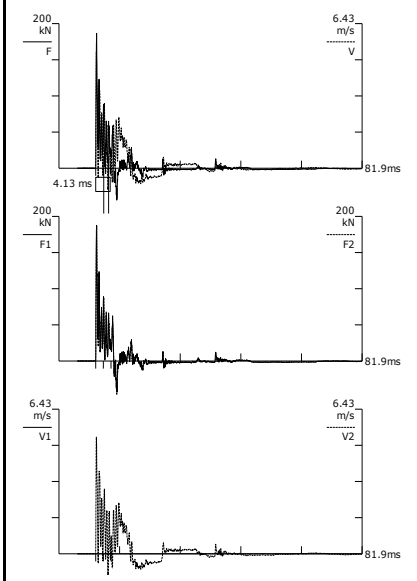
Test 1



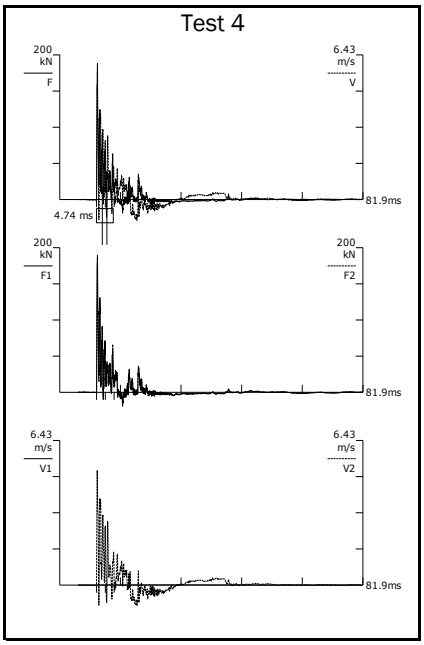
Test 2



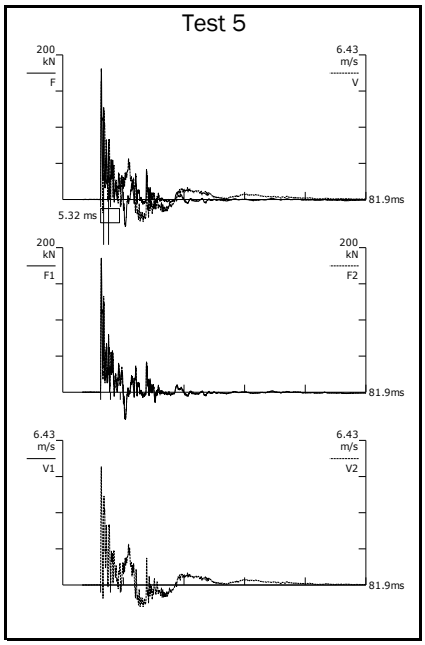
Test 3



Test 4



Test 5



Drill Force NZ Limited
PO Box: 72 335, Papakura 2244
9 Rawson Way, Takanini, Auckland
www.drillforce.co.nz

STANDERD PENETRATION TEST (SPT) HAMMER ENERGY CALIBRATION CERTIFICATE

TEST STANDERD: **ASTMD 4633-16**
Date: 13/11/2024

TYPE: Manual Trip Hammer
Mass: 63.5 kg
Rig ID: Rig 86 / COMACCHIO
Hammer ID: DFSH009
Test Location: GLENBROOK ROAD

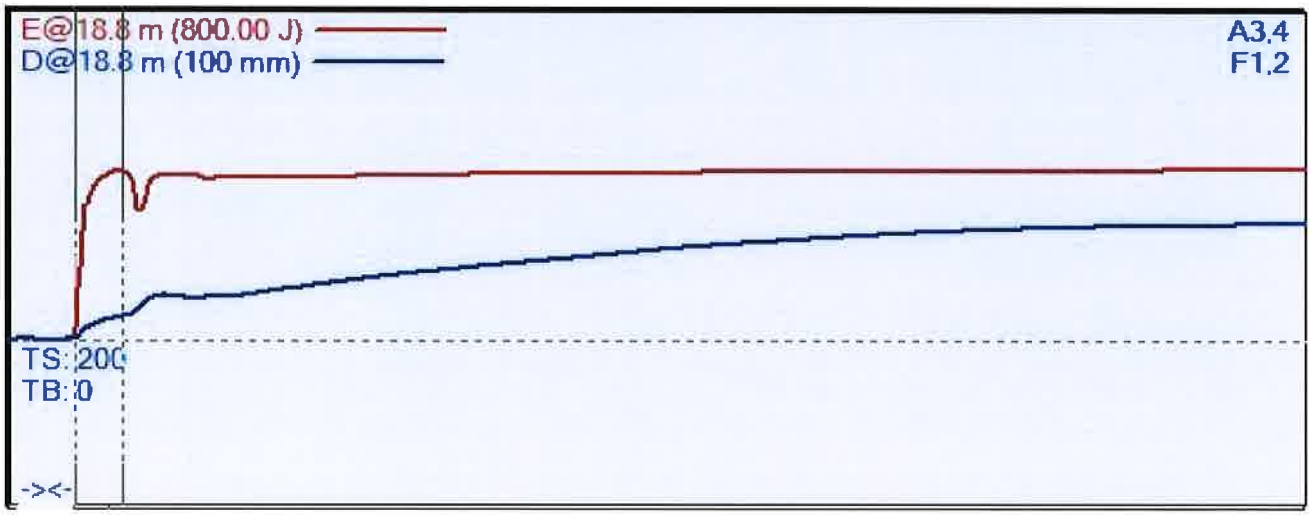
Test No :	TEST 1	TEST 2	TEST 3
Test Depth :	17.00	17.50	18.00
Bore Hole :	BH 02	BH 02	BH 02
Test Date :	31-Oct-24	31-Oct-24	31-Oct-24
Test Time :			
No of Blows :	49	47	48
Standard Deviation	3.3	4.7	4.7

Processing Equipment

Model :	SPT	Maker:	Pile Dynamics Inc USA	Calibration Date:	6/11/2023
Serial No:	4522 TB	Sample Size:	8K	Sample Frequency:	100khz

Test 1	Test 2	Test 3
86.1%	**87.6%**	**86.1%**

Total Blows Analysed : 144	Average Hammer Efficiency	**86.6%**



Tested by : Don Rajapakse Signature :

Checked by : Ryan Tidswell Signature :

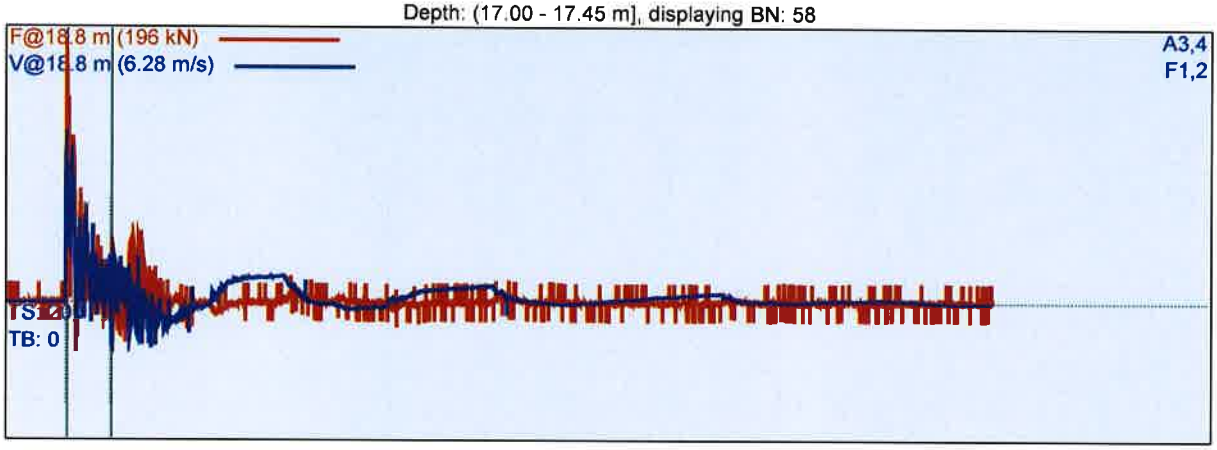
DFSH 009
DON
BH02

17.00_17.45
Interval start: 31/10/2024

AR: 7.74 cm^2
LE: 18.8 m
WS: 5123.0 m/s

SP: 77.3 kN/m3
EM: 206843 MPa

Depth: (17.00 - 17.45 m], displaying BN: 58



F1 : [490AWJ1] 204.539 PDICAL (1) FF1
F2 : [490AWJ2] 206.509 PDICAL (1) FF1

A3 (PR): [K10144] 367.014 mv/6.4v/5000g (1) VF1
A4 (PR): [K10145] 379.969 mv/6.4v/5000g (1) VF1

BL#	LP	BC	ETR	FMX	DMX	CSX	FVP	VMX	DFN	EFV	RAT
	m	/.150m	%	kN	mm	MPa		m/s	mm	J	
12	17.15	19	85.5	171	29	220.9	1.2	3.26	29	405.66	0.2
13	17.15	19	78.6	156	25	201.8	1.1	3.27	25	372.98	0.2
14	17.15	19	87.0	167	35	215.2	1.2	3.19	35	412.92	0.2
15	17.15	19	82.3	165	37	212.9	1.2	3.26	37	390.71	0.2
16	17.15	19	79.2	156	25	201.4	1.0	3.33	25	375.79	0.2
17	17.15	19	86.2	175	36	226.2	1.1	3.30	36	409.23	0.2
18	17.15	19	90.4	164	42	211.7	1.1	3.41	42	428.87	0.2
19	17.15	19	80.2	156	26	201.0	1.0	3.55	26	380.57	0.2
20	17.15	19	82.7	161	25	207.8	1.1	3.33	25	392.26	0.2
21	17.15	19	80.9	159	29	205.4	1.1	3.41	29	384.12	0.2
22	17.15	19	86.3	172	35	222.0	1.1	3.40	35	409.47	0.2
23	17.15	19	81.0	154	28	198.8	0.9	3.48	28	384.49	0.2
24	17.15	19	92.7	166	50	214.1	1.0	3.40	50	439.76	0.2
25	17.15	19	82.2	169	28	217.7	1.2	3.28	28	390.03	0.2
26	17.15	19	87.8	178	35	229.4	1.1	3.38	35	416.79	0.2
27	17.15	19	86.6	184	33	237.4	1.2	3.36	33	411.14	0.2
28	17.15	19	85.3	163	37	210.2	1.1	3.37	37	404.80	0.2
29	17.15	19	87.9	189	36	244.1	0.9	3.57	36	416.94	0.2
30	17.15	19	90.8	188	41	242.4	1.0	3.53	41	430.95	0.2
31	17.30	29	84.4	169	42	218.2	1.1	3.46	42	400.69	0.2
32	17.30	29	83.3	174	39	224.2	0.9	3.74	39	395.08	0.2
33	17.30	29	84.1	161	41	208.5	1.2	3.37	41	399.16	0.2
34	17.30	29	87.4	179	30	231.5	1.1	3.43	30	414.91	0.2
35	17.30	29	87.1	170	31	219.4	0.9	3.59	31	413.13	0.2
36	17.30	29	88.9	189	35	243.6	1.1	3.38	35	421.89	0.2
37	17.30	29	86.9	168	40	217.4	1.2	3.51	39	412.32	0.2
38	17.30	29	85.7	162	36	208.7	1.1	3.41	36	406.81	0.2
39	17.30	29	93.5	171	46	221.5	0.9	3.62	46	443.82	0.2
40	17.30	29	84.8	160	40	207.2	1.1	3.38	40	402.30	0.2
41	17.30	29	83.5	157	32	202.2	1.1	3.43	32	396.44	0.2
42	17.30	29	90.3	171	45	221.0	1.0	3.52	45	428.50	0.2
43	17.30	29	83.8	156	45	201.2	1.1	3.40	45	397.84	0.2
44	17.30	29	87.7	154	49	198.4	1.0	3.44	49	416.13	0.3
45	17.30	29	87.8	164	36	211.6	1.2	3.36	31	416.71	0.2
46	17.30	29	87.1	164	28	212.2	1.0	3.50	28	413.38	0.2

47	17.30	29	85.1	159	19	204.8	1.0	3.49	18	403.63	0.2
48	17.30	29	86.5	168	27	216.5	1.1	3.38	27	410.41	0.2
49	17.30	29	86.0	157	24	202.5	1.1	3.24	18	408.05	0.2
50	17.30	29	82.7	158	26	204.3	1.2	3.23	26	392.56	0.2
51	17.30	29	85.8	168	24	216.9	1.0	3.42	24	407.25	0.2
52	17.30	29	86.3	163	30	210.6	1.1	3.39	25	409.40	0.2
53	17.30	29	88.2	164	37	211.3	1.0	3.49	34	418.67	0.2
54	17.30	29	90.2	181	34	233.8	1.0	3.64	34	428.16	0.2
55	17.30	29	85.0	162	18	209.4	1.1	3.41	10	403.13	0.2
56	17.30	29	89.4	154	41	198.9	1.2	3.56	41	424.42	0.4
57	17.30	29	88.9	174	36	225.0	1.2	3.33	36	421.65	0.2
58	17.30	29	87.5	174	22	224.8	1.0	3.48	18	415.23	0.2
59	17.30	29	90.1	150	41	193.4	1.2	3.65	36	427.74	0.4
60	17.45	1	88.8	182	27	234.7	1.1	3.35	22	421.56	0.2
		Average	86.1	167	34	215.4	1.1	3.42	33	408.74	0.2
		Std Dev	3.3	10	8	12.5	0.1	0.12	8	15.51	0.0
		Maximum	93.5	189	50	244.1	1.2	3.74	50	443.82	0.4
		Minimum	78.6	150	18	193.4	0.9	3.19	10	372.98	0.2

N-value: 49

Sample Interval Time: 250.96 seconds.

Summary of SPT Test Results

Project: DFSH 009, Test Date: 31/10/2024

ETR: Energy Transfer Ratio - Rated
FMX: Maximum Force
DMX: Maximum Displacement
CSX: Compression Stress Maximum
FVP: Force/Velocity Proportionality
VMX: Maximum Velocity
DFN: Final Displacement
EFV: Maximum Energy
RAT: Length Ratio for SPT

Instr. Length m	Start Depth m	Final Depth m	Blows Applied /.150m	N Value	N60 Value	Average ETR %	Average FMX kN	Average DMX mm	Average CSX MPa	Average FVP	Average VMX m/s	Average DFN mm	Average EFV J	Average RAT
18.8	17.00	17.45	**19-29-1**	**49**	**70**	86.1	167	34	215.4	1.1	3.42	33	408.74	0.2
				Overall Average Values:		86.1	167	34	215.4	1.1	3.42	33	408.74	0.2
				Standard Deviation:		3.3	10	8	12.5	0.1	0.12	8	15.51	0.0
				Overall Maximum Value:		93.5	189	50	244.1	1.2	3.74	50	443.82	0.4
				Overall Minimum Value:		78.6	150	18	193.4	0.9	3.19	10	372.98	0.2

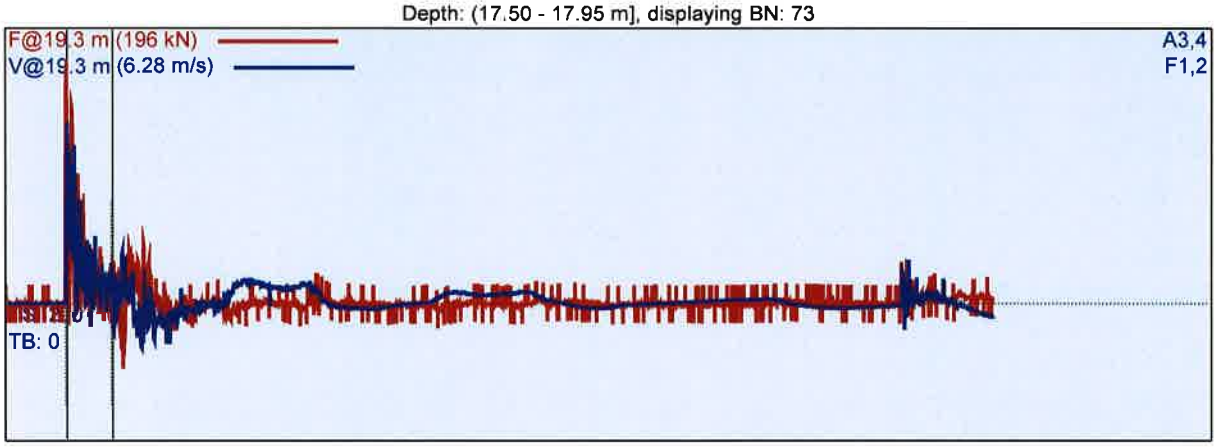
DFSH 009
DON
BH02

17.50_17.95
Interval start: 31/10/2024

AR: 7.74 cm^2
LE: 19.3 m
WS: 5123.0 m/s

SP: 77.3 kN/m3
EM: 206843 MPa

Depth: (17.50 - 17.95 m], displaying BN: 73



F1 : [490AWJ1] 204.539 PDICAL (1) FF1
F2 : [490AWJ2] 206.509 PDICAL (1) FF1

A3 (PR): [K10144] 367.014 mv/6.4v/5000g (1) VF1
A4 (PR): [K10145] 379.969 mv/6.4v/5000g (1) VF1

BL#	LP m	BC /.150m	ETR %	FMX kN	DMX mm	CSX MPa	FVP	VMX m/s	DFN mm	EFV J	RAT
25	17.65	23	86.6	167	29	215.5	0.9	3.50	29	411.07	0.2
27	17.65	23	90.7	156	51	201.8	1.3	3.31	51	430.48	0.7
28	17.65	23	86.1	168	22	217.3	0.8	3.29	22	408.74	0.2
29	17.65	23	91.5	187	36	241.6	0.8	3.53	36	434.30	0.1
30	17.65	23	88.9	168	31	216.8	0.9	3.40	31	421.80	0.1
31	17.65	23	92.9	154	49	199.4	1.1	3.32	49	440.70	0.2
32	17.65	23	91.6	162	49	209.1	1.0	3.44	49	434.46	1.0
33	17.65	23	84.9	152	29	196.0	0.7	3.43	29	402.77	0.2
34	17.65	23	86.4	152	24	196.4	1.0	3.40	24	410.13	0.2
35	17.65	23	88.1	148	34	191.6	0.6	3.74	34	418.20	0.2
36	17.65	23	86.5	142	36	183.3	0.6	3.75	36	410.53	0.1
37	17.65	23	83.0	139	23	179.9	1.0	3.61	21	393.83	0.2
38	17.65	23	87.0	173	33	223.2	0.8	3.36	33	412.63	0.1
39	17.65	23	88.1	160	28	207.2	0.8	3.69	28	418.14	0.2
40	17.65	23	83.5	184	29	238.1	0.9	3.35	28	396.35	0.1
41	17.65	23	83.6	154	20	198.9	0.5	3.96	20	396.89	1.0
42	17.65	23	83.6	151	30	194.8	0.7	3.75	30	396.68	0.2
43	17.65	23	89.6	164	28	212.1	0.6	4.07	28	425.40	0.2
44	17.65	23	86.7	157	23	202.9	0.6	3.93	23	411.49	1.0
45	17.65	23	87.6	150	37	194.3	0.6	3.82	37	415.84	1.0
47	17.65	23	87.4	149	38	192.4	0.7	3.55	38	414.72	0.6
48	17.65	23	85.7	162	19	209.1	0.8	3.65	18	406.80	0.2
49	17.65	23	91.0	185	35	238.7	0.8	3.48	35	431.97	0.1
51	17.80	23	98.0	162	60	209.1	0.7	3.28	60	464.91	0.2
52	17.80	23	96.5	159	63	205.1	1.2	3.32	62	458.13	0.6
53	17.80	23	88.0	159	40	205.2	0.7	3.29	40	417.56	0.2
54	17.80	23	90.4	154	44	198.6	1.0	3.40	43	428.94	0.2
55	17.80	23	91.2	189	34	244.0	0.6	3.74	33	432.96	0.1
56	17.80	23	86.5	161	23	207.7	0.9	3.57	22	410.53	0.2
57	17.80	23	85.4	157	39	202.9	0.7	3.67	39	405.25	0.5
58	17.80	23	88.5	180	29	233.0	0.6	3.80	28	419.75	0.1
59	17.80	23	82.9	151	27	194.7	0.7	3.81	27	393.29	0.1
60	17.80	23	93.9	160	60	206.5	0.8	3.53	60	445.53	1.0
61	17.80	23	85.8	156	28	201.3	0.6	3.76	27	407.08	1.0
62	17.80	23	82.3	156	22	201.7	0.6	3.70	21	390.73	0.2

64	17.80	23	84.5	157	34	202.4	0.6	3.59	34	400.83	0.5
65	17.80	23	93.2	157	60	202.5	0.7	3.62	60	442.23	0.5
66	17.80	23	98.8	157	70	202.3	1.0	3.66	70	468.74	0.5
67	17.80	23	93.8	159	59	205.1	0.5	3.73	59	445.18	0.5
68	17.80	23	95.1	154	54	198.3	0.7	3.61	53	451.18	0.7
69	17.80	23	80.2	162	13	209.0	0.5	3.65	8	380.52	0.2
70	17.80	23	82.3	158	38	204.5	0.6	3.61	38	390.35	0.6
71	17.80	23	82.4	157	36	202.3	0.6	3.67	36	390.97	0.9
72	17.80	23	82.2	156	30	201.7	0.8	3.62	29	389.95	0.5
73	17.80	23	81.3	160	14	206.9	0.5	3.71	8	385.76	0.1
74	17.80	23	76.1	159	20	205.8	0.6	3.55	20	360.96	0.5
75	17.95	1	85.5	160	27	206.4	0.8	3.55	23	405.53	0.1
		Average	87.6	160	35	206.8	0.8	3.59	35	415.55	0.4
		Std Dev	4.7	11	14	13.7	0.2	0.19	14	22.54	0.3
		Maximum	98.8	189	70	244.0	1.3	4.07	70	468.74	1.0
		Minimum	76.1	139	13	179.9	0.5	3.28	8	360.96	0.1

N-value: 47

Sample Interval Time: 315.09 seconds.

Summary of SPT Test Results

Project: DFSH 009, Test Date: 31/10/2024

ETR: Energy Transfer Ratio - Rated
FMX: Maximum Force
DMX: Maximum Displacement
CSX: Compression Stress Maximum
FVP: Force/Velocity Proportionality

VMX: Maximum Velocity
DFN: Final Displacement
EFV: Maximum Energy
RAT: Length Ratio for SPT

Instr. Length m	Start Depth m	Final Depth m	Blows Applied /.150m	N Value	N60 Value	Average ETR %	Average FMX kN	Average DMX mm	Average CSX MPa	Average FVP	Average VMX m/s	Average DFN mm	Average EFV J	Average RAT
19.3	17.50	17.95	**23-23-1**	**47**	**68**	87.6	160	35	206.8	0.8	3.59	35	415.55	0.4
			Overall Average Values:			87.6	160	35	206.8	0.8	3.59	35	415.55	0.4
			Standard Deviation:			4.7	11	14	13.7	0.2	0.19	14	22.54	0.3
			Overall Maximum Value:			98.8	189	70	244.0	1.3	4.07	70	468.74	1.0
			Overall Minimum Value:			76.1	139	13	179.9	0.5	3.28	8	360.96	0.1

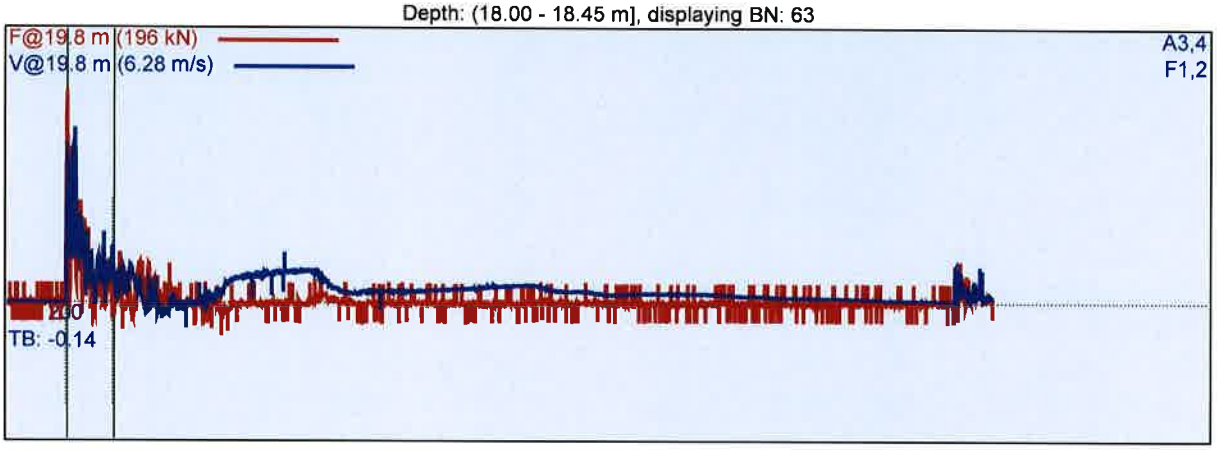
DFSH 009
DON
BH02

18.00_18.45
Interval start: 31/10/2024

AR: 7.74 cm^2
LE: 19.8 m
WS: 5123.0 m/s

SP: 77.3 kN/m3
EM: 206843 MPa

Depth: (18.00 - 18.45 m], displaying BN: 63



F1 : [490AWJ1] 204.539 PDICAL (1) FF1
F2 : [490AWJ2] 206.509 PDICAL (1) FF1

A3 (PR): [K10144] 367.014 mv/6.4v/5000g (1) VF1
A4 (PR): [K10145] 379.969 mv/6.4v/5000g (1) VF1

BL#	LP	BC	ETR	FMX	DMX	CSX	FVP	VMX	DFN	EFV	RAT
	m	/.150m	%	kN	mm	MPa		m/s	mm	J	
13	18.15	19	81.0	161	15	207.9	1.1	3.09	15	384.21	0.2
14	18.15	19	77.1	162	29	209.5	1.1	3.00	29	365.75	0.2
15	18.15	19	82.5	159	26	205.1	1.1	3.25	26	391.54	0.2
16	18.15	19	84.7	162	29	209.6	1.1	3.16	29	402.14	0.2
18	18.15	19	85.1	140	46	181.5	0.3	3.37	46	403.83	0.2
19	18.15	19	80.8	162	18	209.2	1.2	3.12	18	383.39	0.2
20	18.15	19	87.5	178	33	229.8	1.2	3.39	33	415.28	0.2
21	18.15	19	87.9	162	31	208.7	1.3	3.27	31	417.02	0.2
23	18.15	19	85.8	167	24	215.1	1.3	3.33	23	407.16	0.2
24	18.15	19	81.9	142	38	183.1	0.5	3.20	38	388.44	0.5
25	18.15	19	81.9	156	19	201.1	1.3	3.29	19	388.73	0.2
26	18.15	19	83.7	159	39	205.1	1.2	3.10	39	397.21	0.2
27	18.15	19	96.5	152	64	196.5	0.3	3.50	64	457.71	0.2
28	18.15	19	85.7	168	32	216.4	1.2	3.40	32	406.45	0.2
29	18.15	19	86.9	157	40	202.6	1.2	3.32	40	412.24	0.2
30	18.15	19	83.7	159	28	205.1	1.1	3.27	28	397.29	0.2
31	18.15	19	90.8	160	47	207.3	1.2	3.29	47	430.95	0.2
32	18.15	19	85.0	147	31	189.8	1.0	3.40	31	403.46	0.2
33	18.15	19	83.6	141	29	182.0	1.1	3.26	29	396.74	0.2
35	18.30	28	78.5	169	25	218.2	1.2	3.29	24	372.46	0.2
36	18.30	28	83.3	153	45	198.2	1.2	3.10	45	395.18	0.2
38	18.30	28	84.8	145	36	187.5	1.2	3.55	36	402.59	0.2
39	18.30	28	97.4	150	66	194.3	1.2	3.63	66	462.30	0.2
40	18.30	28	82.0	147	24	189.6	1.0	3.36	22	389.35	0.2
41	18.30	28	84.1	163	31	210.7	1.2	3.15	30	398.86	0.2
43	18.30	28	86.3	165	23	213.8	1.2	3.22	23	409.54	0.2
44	18.30	28	81.8	166	24	214.7	1.2	3.37	24	388.18	0.2
45	18.30	28	94.1	152	55	196.7	1.3	3.76	55	446.40	0.2
46	18.30	28	99.8	159	64	205.4	1.3	3.59	64	473.68	0.2
47	18.30	28	91.1	162	56	209.2	0.4	3.08	56	432.10	0.2
48	18.30	28	84.4	152	38	196.5	0.1	3.32	38	400.30	0.5
49	18.30	28	84.5	168	20	216.8	0.4	3.22	14	401.05	0.2
50	18.30	28	91.8	148	56	190.8	1.4	3.21	56	435.50	0.6
51	18.30	28	82.5	184	18	237.6	0.3	3.67	13	391.47	0.2
52	18.30	28	93.5	155	41	200.5	1.3	3.48	40	443.70	0.2

53	18.30	28	85.2	160	36	206.3	1.3	3.18	36	404.27	0.2
54	18.30	28	87.9	169	30	218.1	1.3	3.39	28	417.22	0.2
55	18.30	28	86.4	191	20	247.2	1.3	3.53	17	409.96	0.2
56	18.30	28	82.3	174	17	224.8	0.5	3.66	14	390.33	0.1
57	18.30	28	90.3	166	39	214.4	0.5	3.24	38	428.47	0.2
58	18.30	28	83.3	186	19	240.7	0.6	3.60	17	395.51	0.1
59	18.30	28	86.6	161	28	208.2	0.4	3.30	26	411.18	0.2
60	18.30	28	85.7	168	40	217.1	0.6	3.47	40	406.83	0.2
61	18.30	28	82.2	177	28	229.1	0.8	3.67	27	390.27	0.2
62	18.30	28	88.5	158	39	203.8	0.6	3.63	38	419.76	0.2
63	18.30	28	86.7	138	44	178.7	1.3	3.53	41	411.31	0.6
64	18.30	28	86.1	166	37	214.8	0.6	3.69	36	408.69	0.2
65	18.45	1	91.1	146	58	188.9	0.7	3.46	58	432.21	0.2
		Average	86.1	160	35	207.0	1.0	3.36	34	408.71	0.2
		Std Dev	4.7	12	13	15.0	0.4	0.19	14	22.18	0.1
		Maximum	99.8	191	66	247.2	1.4	3.76	66	473.68	0.6
		Minimum	77.1	138	15	178.7	0.1	3.00	13	365.75	0.1

N-value: 48

Sample Interval Time: 353.75 seconds.

Summary of SPT Test Results

Project: DFSH 009, Test Date: 31/10/2024

ETR: Energy Transfer Ratio - Rated
FMX: Maximum Force
DMX: Maximum Displacement
CSX: Compression Stress Maximum
FVP: Force/Velocity Proportionality

VMX: Maximum Velocity
DFN: Final Displacement
EFV: Maximum Energy
RAT: Length Ratio for SPT

Instr. Length m	Start Depth m	Final Depth m	Blows Applied /.150m	N Value	N60 Value	Average ETR %	Average FMX kN	Average DMX mm	Average CSX MPa	Average FVP	Average VMX m/s	Average DFN mm	Average EFV J	Average RAT
19.8	18.00	18.45	**19-28-1**	**48**	**68**	86.1	160	35	207.0	1.0	3.36	34	408.71	0.2
			Overall Average Values:			86.1	160	35	207.0	1.0	3.36	34	408.71	0.2
			Standard Deviation:			4.7	12	13	15.0	0.4	0.19	14	22.18	0.1
			Overall Maximum Value:			99.8	191	66	247.2	1.4	3.76	66	473.68	0.6
			Overall Minimum Value:			77.1	138	15	178.7	0.1	3.00	13	365.75	0.1

Drill Force NZ Limited
PO Box: 72 335, Papakura 2244
9 Rawson Way, Takanini, Auckland
www.drillforce.co.nz

STANDERD PENETRATION TEST (SPT) HAMMER ENERGY CALIBRATION CERTIFICATE

TEST STANDERD: **ASTMD 4633-16**
Date: 16/12/2024

TYPE: Auto Trip Hammer
Mass: 63.5 kg
Rig ID: Rig 99 TECH DRILL 200
Hammer ID: DFSH099
Test Location: GLENBROOK ROAD

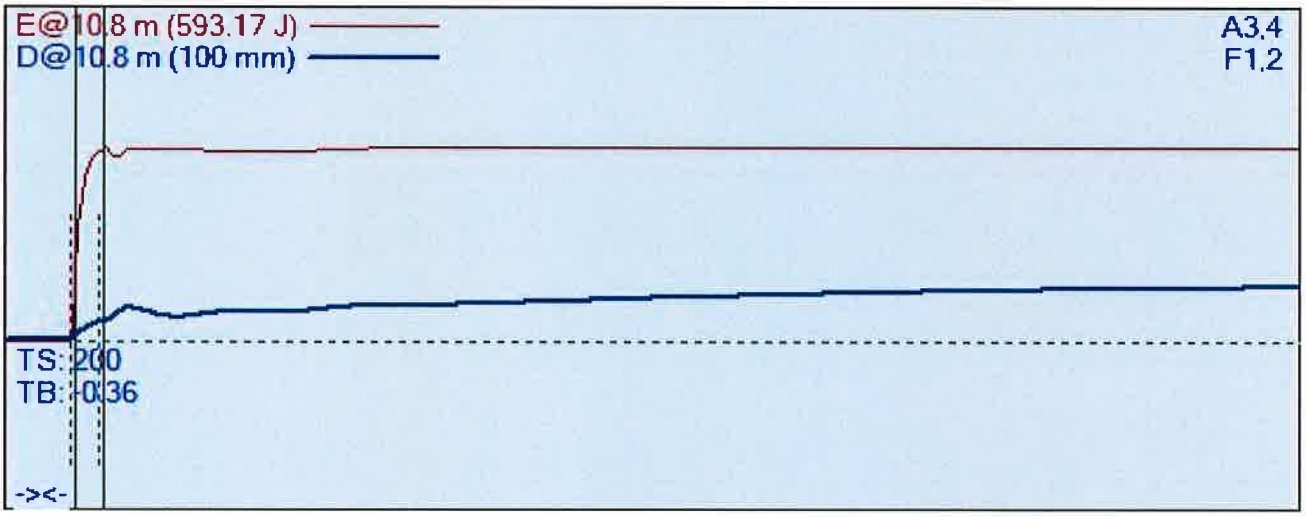
Test No :	TEST 1	TEST 2	TEST 3
Test Depth :	9.00	9.50	11.00
Bore Hole :	BH 03	BH 03	BH 03
Date TESTED :	8-Oct-24	8-Oct-24	8-Oct-24
Test Time :			
No of Blows :	32	33	19
Standard Deviation	2.5	2.1	1.9

Processing Equipment

Model :	SPT	Maker:	Pile Dynamics Inc USA	Calibration Date:	6/11/2023
Serial No:	4522 TB	Sample Size:	8K	Sample Frequency:	100khz

Test 1	Test 2	Test 3
72.5%	**73.7%**	**67.6%**

Total Blows Analysed : 84	Average Hammer Efficiency	**71.3%**



Tested by : Don Rajapakse Signature :

Checked by : Ryan Tidswell Signature :

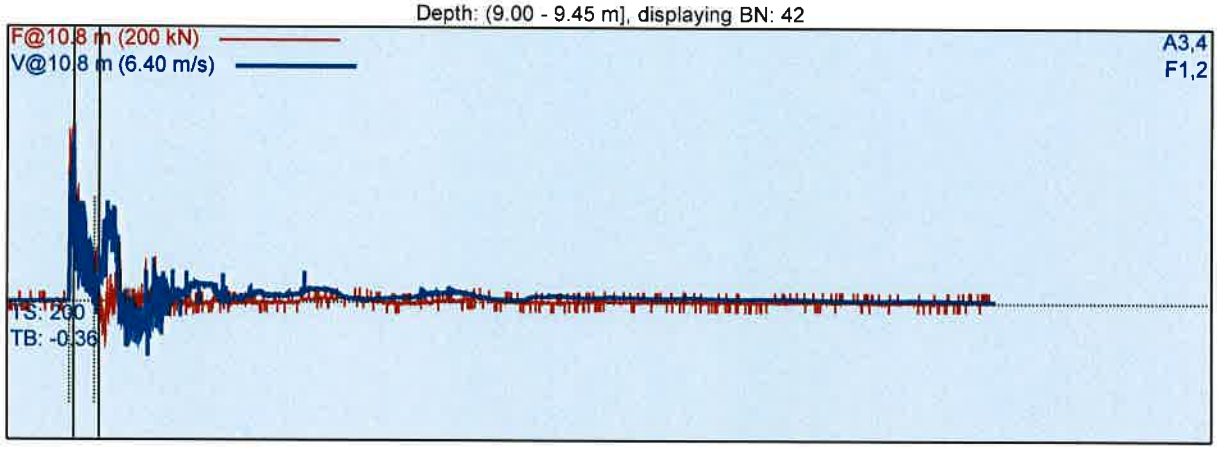
DFSH099
DON
BH03

9.00_9.45
Interval start: 8/11/2024

AR: 7.74 cm^2
LE: 10.8 m
WS: 5123.0 m/s

SP: 77.3 kN/m3
EM: 206843 MPa

Depth: (9.00 - 9.45 m], displaying BN: 42



F1 : [490AWJ1] 204.539 PDICAL (1) FF1
F2 : [490AWJ2] 206.509 PDICAL (1) FF1

A3 (PR): [K10144] 367.014 mv/6.4v/5000g (1) VF1
A4 (PR): [K10145] 379.969 mv/6.4v/5000g (1) VF1

BL#	LP m	BC /.150m	ETR %	FMX kN	DMX mm	CSX MPa	FVP	VMX m/s	DFN mm	EFV J	RAT
13	9.15	14	71.2	128	21	165.2	1.0	3.39	21	337.89	1.2
14	9.15	14	70.1	123	20	158.9	0.8	3.67	20	332.56	1.2
15	9.15	14	69.7	127	18	164.4	0.8	3.59	18	330.69	1.2
16	9.15	14	70.9	128	20	165.4	1.0	3.38	20	336.49	1.2
17	9.15	14	72.9	153	17	197.8	1.2	3.42	17	345.90	1.2
18	9.15	14	74.1	150	18	193.2	1.3	3.34	17	351.79	1.2
19	9.15	14	76.2	170	18	219.6	1.2	3.74	18	361.52	1.2
20	9.15	14	69.4	126	17	162.9	0.8	3.51	17	329.42	1.2
21	9.15	14	69.8	130	16	167.8	0.9	3.42	16	331.17	1.2
22	9.15	14	70.3	136	16	176.3	0.8	2.97	16	333.76	1.2
23	9.15	14	68.9	126	16	163.0	0.9	3.47	16	326.88	1.2
24	9.15	14	80.8	194	20	250.5	1.3	4.10	20	383.57	0.9
25	9.15	14	72.5	136	12	176.1	0.9	3.14	12	344.01	1.2
26	9.15	14	70.5	128	23	165.0	0.9	3.69	23	334.75	1.2
27	9.30	17	78.6	180	20	232.1	1.3	3.98	20	372.79	1.2
28	9.30	17	73.0	137	20	177.2	0.9	3.24	20	346.19	1.2
29	9.30	17	71.7	123	20	159.0	0.8	3.76	20	340.28	1.2
30	9.30	17	71.1	127	18	164.3	1.0	3.69	18	337.56	1.2
31	9.30	17	71.3	137	16	177.2	1.1	2.98	16	338.43	1.2
32	9.30	17	70.7	126	15	162.8	0.9	3.35	15	335.36	1.2
33	9.30	17	70.8	129	15	167.1	0.9	3.30	15	335.88	1.2
34	9.30	17	73.1	132	21	170.5	0.9	3.08	21	347.09	1.2
35	9.30	17	72.5	146	16	188.2	1.1	3.10	16	344.15	1.2
36	9.30	17	73.9	131	20	168.9	0.9	3.22	20	350.49	1.2
37	9.30	17	73.4	129	20	167.2	0.8	3.86	20	348.09	1.2
38	9.30	17	74.5	125	24	161.2	0.8	3.66	24	353.60	1.2
39	9.30	17	73.0	149	18	193.0	1.2	2.99	18	346.42	0.3
40	9.30	17	72.4	139	16	178.9	0.9	3.29	16	343.52	1.2
41	9.30	17	73.8	137	16	176.8	0.8	3.50	16	350.22	1.2
42	9.30	17	71.4	125	26	161.3	1.0	3.69	26	339.01	1.2
43	9.30	17	72.8	126	15	163.2	0.9	3.49	15	345.46	1.2
44	9.45	1	75.0	129	17	166.7	0.9	3.83	17	356.00	1.2

Average	72.5	137	18	176.9	1.0	3.46	18	344.09	1.2
Std Dev	2.5	16	3	21.3	0.2	0.29	3	12.04	0.2
Maximum	80.8	194	26	250.5	1.3	4.10	26	383.57	1.2
Minimum	68.9	123	12	158.9	0.8	2.97	12	326.88	0.3

N-value: 32

Sample Interval Time: 95.29 seconds.

Summary of SPT Test Results

Project: DFSH099, Test Date: 8/11/2024

ETR: Energy Transfer Ratio - Rated
FMX: Maximum Force
DMX: Maximum Displacement
CSX: Compression Stress Maximum
FVP: Force/Velocity Proportionality
VMX: Maximum Velocity
DFN: Final Displacement
EFV: Maximum Energy
RAT: Length Ratio for SPT

Instr. Length m	Start Depth m	Final Depth m	Blows Applied /.150m	N Value	N60 Value	Average ETR %	Average FMX kN	Average DMX mm	Average CSX MPa	Average FVP	Average VMX m/s	Average DFN mm	Average EFV J	Average RAT
10.8	9.00	9.45	**14-17-1**	**32**	**38**	72.5	137	18	176.9	1.0	3.46	18	344.09	1.2
			Overall Average Values:			72.5	137	18	176.9	1.0	3.46	18	344.09	1.2
			Standard Deviation:			2.5	16	3	21.3	0.2	0.29	3	12.04	0.2
			Overall Maximum Value:			80.8	194	26	250.5	1.3	4.10	26	383.57	1.2
			Overall Minimum Value:			68.9	123	12	158.9	0.8	2.97	12	326.88	0.3

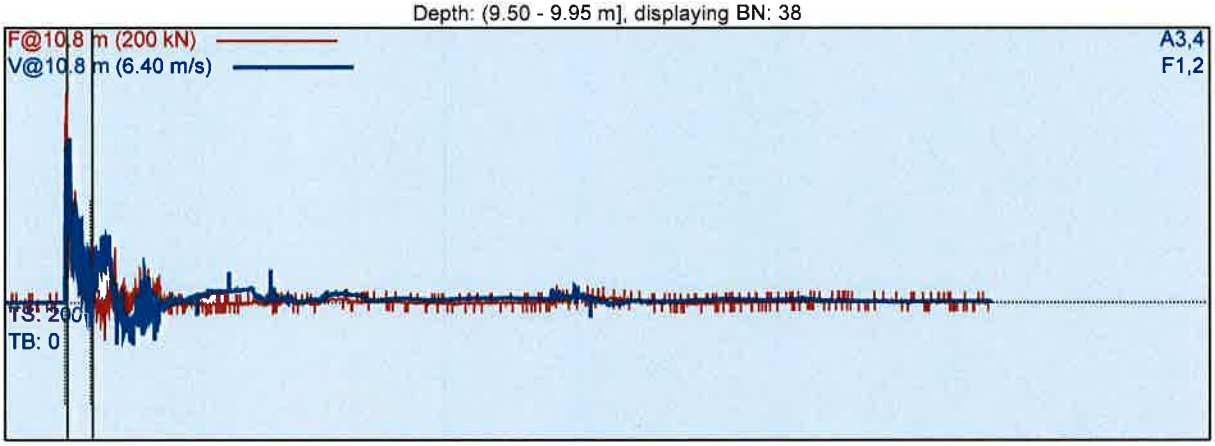
DFSH099
DON
BH03

9.50_9.95
Interval start: 8/11/2024

AR: 7.74 cm^2
LE: 10.8 m
WS: 5123.0 m/s

SP: 77.3 kN/m3
EM: 206843 MPa

Depth: (9.50 - 9.95 m], displaying BN: 38



F1 : [490AWJ1] 204.539 PDICAL (1) FF1
F2 : [490AWJ2] 206.509 PDICAL (1) FF1

A3 (PR): [K10144] 367.014 mv/6.4v/5000g (1) VF1
A4 (PR): [K10145] 379.969 mv/6.4v/5000g (1) VF1

BL#	LP m	BC /.150m	ETR %	FMX kN	DMX mm	CSX MPa	FVP	VMX m/s	DFN mm	EFV J	RAT
8	9.65	12	70.4	138	27	178.3	0.9	3.39	27	334.22	1.2
9	9.65	12	73.2	136	31	175.5	0.8	3.30	31	347.15	1.2
10	9.65	12	71.6	140	31	180.6	0.9	3.27	31	339.67	1.2
11	9.65	12	71.8	135	30	174.1	0.7	3.20	30	340.91	1.2
12	9.65	12	70.4	135	25	173.9	0.9	3.32	25	334.20	1.2
13	9.65	12	71.0	137	24	176.8	0.9	3.40	24	337.10	1.2
14	9.65	12	73.6	152	21	195.8	1.6	3.12	21	349.21	1.2
15	9.65	12	73.3	134	33	173.2	0.8	3.43	33	347.82	1.2
16	9.65	12	72.0	135	24	174.0	0.8	3.29	24	341.60	1.2
17	9.65	12	75.2	157	20	203.0	1.1	3.46	20	356.93	1.2
18	9.65	12	72.7	146	28	188.4	0.6	3.67	28	345.22	1.2
19	9.65	12	72.5	141	26	182.7	0.7	3.54	26	344.08	1.2
20	9.80	20	74.6	149	23	192.9	1.2	3.29	23	353.95	1.2
21	9.80	20	73.8	136	23	175.5	0.7	3.56	23	350.41	1.2
22	9.80	20	71.5	125	17	161.3	0.7	3.46	17	339.38	1.2
23	9.80	20	72.3	134	17	172.5	1.2	3.38	17	343.08	1.2
24	9.80	20	71.4	134	19	173.2	1.2	3.38	19	339.04	1.2
25	9.80	20	75.9	144	19	186.4	1.3	3.48	19	360.11	1.2
26	9.80	20	73.7	139	19	179.8	1.3	3.47	19	349.87	1.2
27	9.80	20	72.0	136	13	176.3	1.1	3.38	13	341.88	1.2
28	9.80	20	73.9	129	22	166.4	1.1	3.35	22	350.54	1.2
29	9.80	20	72.0	130	17	168.1	1.2	3.35	17	341.69	1.2
30	9.80	20	72.6	127	18	164.1	0.7	3.24	18	344.65	1.2
31	9.80	20	74.8	140	16	180.6	1.3	3.32	16	354.92	1.2
32	9.80	20	77.7	161	20	207.9	1.2	3.78	20	368.95	1.2
33	9.80	20	75.8	146	19	188.9	1.2	3.49	19	359.63	1.2
34	9.80	20	77.9	158	16	204.3	1.3	3.76	16	369.56	1.2
35	9.80	20	73.7	155	18	200.1	1.2	3.22	18	349.91	1.2
36	9.80	20	77.2	161	21	207.5	1.2	3.74	21	366.50	1.2
37	9.80	20	75.9	147	17	190.3	1.2	3.27	17	360.25	1.2
38	9.80	20	77.4	146	19	189.0	1.2	3.46	19	367.23	1.2
39	9.80	20	73.6	137	17	176.9	1.1	3.26	17	349.40	1.2
40	9.95	1	76.5	137	19	176.9	1.3	3.43	19	363.20	1.2

Average	73.7	141	22	182.3	1.0	3.41	22	349.77	1.2
Std Dev	2.1	9	5	12.3	0.2	0.16	5	10.02	0.0
Maximum	77.9	161	33	207.9	1.6	3.78	33	369.56	1.2
Minimum	70.4	125	13	161.3	0.6	3.12	13	334.20	1.2

N-value: 33

Sample Interval Time: 142.58 seconds.

Summary of SPT Test Results

Project: DFSH099, Test Date: 8/11/2024

ETR: Energy Transfer Ratio - Rated
FMX: Maximum Force
DMX: Maximum Displacement
CSX: Compression Stress Maximum
FVP: Force/Velocity Proportionality

VMX: Maximum Velocity
DFN: Final Displacement
EFV: Maximum Energy
RAT: Length Ratio for SPT

Instr. Length m	Start Depth m	Final Depth m	Blows Applied /.150m	N Value	N60 Value	Average ETR %	Average FMX kN	Average DMX mm	Average CSX MPa	Average FVP	Average VMX m/s	Average DFN mm	Average EFV J	Average RAT
10.8	9.50	9.95	**12-20-1**	**33**	**40**	73.7	141	22	182.3	1.0	3.41	22	349.77	1.2
			Overall Average Values:			73.7	141	22	182.3	1.0	3.41	22	349.77	1.2
			Standard Deviation:			2.1	9	5	12.3	0.2	0.16	5	10.02	0.0
			Overall Maximum Value:			77.9	161	33	207.9	1.6	3.78	33	369.56	1.2
			Overall Minimum Value:			70.4	125	13	161.3	0.6	3.12	13	334.20	1.2

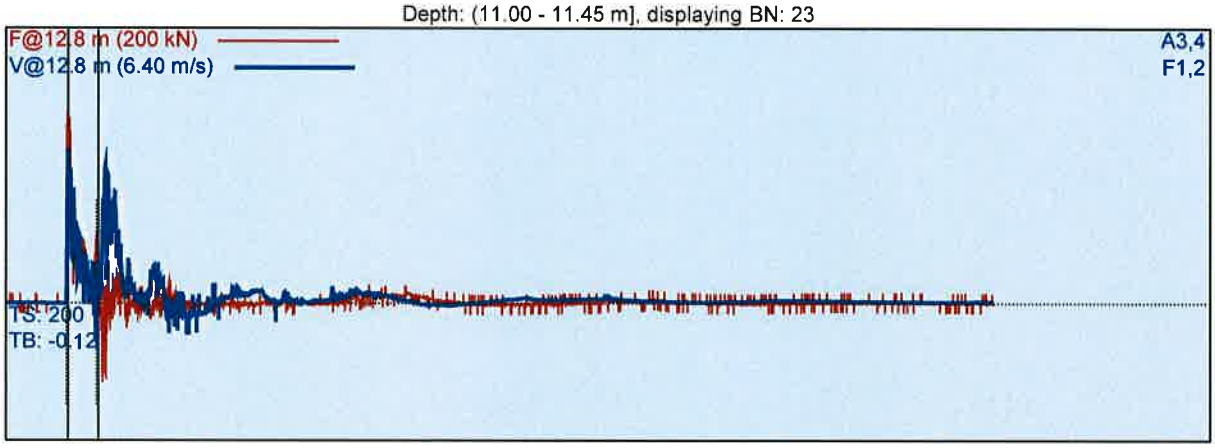
DFSH099
DON
BH03

11.00_11.45
Interval start: 8/11/2024

AR: 7.74 cm^2
LE: 12.8 m
WS: 5123.0 m/s

SP: 77.3 kN/m3
EM: 206843 MPa

Depth: (11.00 - 11.45 m], displaying BN: 23



F1 : [490AWJ1] 204.539 PDICAL (1) FF1
F2 : [490AWJ2] 206.509 PDICAL (1) FF1

A3 (PR): [K10144] 367.014 mv/6.4v/5000g (1) VF1
A4 (PR): [K10145] 379.969 mv/6.4v/5000g (1) VF1

BL#	LP	BC	ETR	FMX	DMX	CSX	FVP	VMX	DFN	EFV	RAT
	m	/.150m	%	kN	mm	MPa		m/s	mm	J	
7	11.15	8	68.9	139	27	179.6	1.1	3.58	27	326.76	1.1
8	11.15	8	66.6	146	29	188.5	1.0	3.49	29	316.11	1.1
9	11.15	8	66.9	141	30	182.2	1.1	3.47	30	317.53	1.1
10	11.15	8	64.3	138	30	178.7	0.9	3.52	30	305.11	1.1
11	11.15	8	67.2	146	33	188.7	1.1	3.40	33	318.82	1.1
12	11.15	8	67.6	132	32	170.1	1.1	3.41	32	320.60	1.1
13	11.15	8	70.5	136	30	175.9	1.3	3.73	30	334.75	1.1
14	11.15	8	66.7	135	29	174.2	1.1	3.59	29	316.33	1.1
15	11.30	10	67.1	138	28	178.1	1.1	3.67	28	318.18	1.1
16	11.30	10	68.0	139	30	179.1	1.1	3.57	30	322.84	1.1
17	11.30	10	69.8	127	33	164.3	0.9	3.56	33	331.02	1.1
18	11.30	10	68.4	140	34	180.8	0.9	3.78	34	324.43	1.1
19	11.30	10	67.3	128	26	165.3	1.1	3.47	26	319.34	1.1
20	11.30	10	66.5	145	25	187.7	1.1	3.53	25	315.64	1.1
21	11.30	10	67.5	139	25	180.0	1.1	3.49	25	320.11	1.1
22	11.30	10	70.8	141	38	182.5	1.0	3.39	38	336.07	1.1
23	11.30	10	64.3	133	22	171.7	1.2	3.18	22	304.99	1.1
24	11.30	10	64.8	133	24	172.0	1.1	3.23	24	307.59	1.1
25	11.45	1	70.7	147	30	189.9	1.1	3.38	30	335.43	1.1
		Average	67.6	138	29	178.4	1.1	3.50	29	320.61	1.1
		Std Dev	1.9	6	4	7.3	0.1	0.15	4	9.07	0.0
		Maximum	70.8	147	38	189.9	1.3	3.78	38	336.07	1.1
		Minimum	64.3	127	22	164.3	0.9	3.18	22	304.99	1.1

N-value: 19

Sample Interval Time: 81.07 seconds.

Summary of SPT Test Results

Project: DFSH099, Test Date: 8/11/2024

ETR: Energy Transfer Ratio - Rated
FMX: Maximum Force
DMX: Maximum Displacement
CSX: Compression Stress Maximum
FVP: Force/Velocity Proportionality
VMX: Maximum Velocity
DFN: Final Displacement
EFV: Maximum Energy
RAT: Length Ratio for SPT

Instr. Length m	Start Depth m	Final Depth m	Blows Applied /.150m	N Value	N60 Value	Average ETR %	Average FMX kN	Average DMX mm	Average CSX MPa	Average FVP	Average VMX m/s	Average DFN mm	Average EFV J	Average RAT
12.8	11.00	11.45	**8-10-1**	**19**	**21**	67.6	138	29	178.4	1.1	3.50	29	320.61	1.1
			Overall Average Values:			67.6	138	29	178.4	1.1	3.50	29	320.61	1.1
			Standard Deviation:			1.9	6	4	7.3	0.1	0.15	4	9.07	0.0
			Overall Maximum Value:			70.8	147	38	189.9	1.3	3.78	38	336.07	1.1
			Overall Minimum Value:			64.3	127	22	164.3	0.9	3.18	22	304.99	1.1