

POINT LOAD STRENGTH OF ROCK TEST REPORT



Project : Ground Investigation for Northland Corridor
 Location : Alternative to Brynderwyn Hills Section
 Client : NZTA C/- Aurecon & WSP NZ Ltd
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 25/08/25
 Sampling method : Core
 Sample description : Interbedded SILTSTONE/MUDSTONE
 Sample condition : As Received

Project No : 1-C2466.16
 Lab Ref No : WL4708/21-PL
 Client Ref No : -

Test Results

Lab Ref No :	1	2	Water Content and Density	
Location ID No :	BH2B_1104	BH2B_1104	Water content as received(%)	12.19
Depth (m) :	31.30-31.50	31.30-31.50	Water content at testing(%)	12.19
Test Type :	Axial	Diametral	Bulk density (t/m ³)	3.05
Width, W (mm) :	60.09	60.08	Dry density (t/m ³)	2.72
Diameter, D (mm) :	48.40	50.24		
Load, P (kN)	0.52	0.26		
D _e ² (mm ²)	3703	2524		
D _e (mm)	60.85	50.24		
I _s (MPa)	0.14	0.10		
Size Factor, F	1.09	1.00		
I _{s(50)} (MPa)	0.15	0.10		

Test Methods

Point Load Strength : ASTM D5731-16

Notes

Date tested : 10/10/25

Date reported : 23/12/25

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 All information supplied by Client

Approved

Thirushen Pillay

Designation : Senior Civil Engineering Technician

Date : 07/01/26

**POINT LOAD STRENGTH OF ROCK
TEST REPORT**



Project : Ground Investigation for Northland Corridor
 Location : Alternative to Brynderwyn Hills Section
 Client : NZTA C/- Aurecon & WSP NZ Ltd
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 3/09/25
 Sampling method : Core
 Sample description : Calcareous SILTSTONE
 Sample condition : As Received

Project No : 1-C2466.16
 Lab Ref No : WL4708/31-PL
 Client Ref No : -

Test Results

Lab Ref No :	1	2	Water Content and Density	
Location ID No :	BH2B_1105	BH2B_1105	Water content as received(%)	-
Depth (m) :	17.40-17.90	17.40-17.90	Water content at testing(%)	-
Test Type :	Axial	Diametral	Bulk density (t/m ³)	-
Width, W (mm) :	60.02		Dry density (t/m ³)	-
Diameter, D (mm) :	48.80	54.82		
Load, P (kN)	1.89	0.58		
D _e ² (mm ²)	3729	3005		
D _e (mm)	61.07	54.82		
I _s (MPa)	0.51	0.19		
Size Factor, F	1.09	1.04		
I _{s(50)} (MPa)	0.56	0.20		

Test Methods	Notes
Point Load Strength : ASTM D5731-16	

Date tested : 10/10/25
 Date reported : 18/12/25

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Thirushen Pillay

Designation : Senior Civil Engineering Technician
 Date : 07/01/26

POINT LOAD STRENGTH OF ROCK TEST REPORT



Project : Ground Investigation for Northland Corridor
 Location : Alternative to Brynderwyn Hills Section
 Client : NZTA C/- Aurecon & WSP NZ Ltd
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 4/09/25
 Sampling method : Core
 Sample description : SILTSTONE
 Sample condition : As Received

Project No : 1-C2466.16
 Lab Ref No : WL4708/32-PL
 Client Ref No : -

Test Results

Lab Ref No :	1	2	Water Content and Density	
Location ID No :	BH2B_1105	BH2B_1105	Water content as received(%)	-
Depth (m) :	21.60-22.00	21.60-22.0	Water content at testing(%)	-
Test Type :	Axial	Diametral	Bulk density (t/m ³)	-
Width, W (mm) :	60.06		Dry density (t/m ³)	-
Diameter, D (mm) :	46.30	50.25		
Load, P (kN)	0.37	0.65		
D _e ² (mm ²)	3541	2525		
D _e (mm)	59.50	50.25		
I _s (MPa)	0.10	0.26		
Size Factor, F	1.08	1.00		
I _{s(50)} (MPa)	0.11	0.26		

Test Methods

Point Load Strength : ASTM D5731-16

Notes

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Thirushen Pillay

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Date : 14/01/26

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TEST REPORT**



Project : Ground Investigation for Northland Corridor
 Location : Alternative to Brynderwyn Hills Section
 Client : NZTA C/- Aurecon & WSP NZ Ltd
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 4/09/25
 Sampling method : Core
 Sample description : SANDSTONE
 Sample condition : As Received

Project No : 1-C2466.16
 Lab Ref No : WL4708/34-PL
 Client Ref No : -

Test Results

Lab Ref No :	1	2	Water Content and Density	
Location ID No :	BH2B_1105	BH2B_1105	Water content as received(%)	-
Depth (m) :	38.25-38.60	38.25-38.60	Water content at testing(%)	-
Test Type :	Axial	Diametral	Bulk density (t/m ³)	-
Width, W (mm) :	61.00		Dry density (t/m ³)	-
Diameter, D (mm) :	51.00	54.20		
Load, P (kN)	4.88	2.34		
D _e ² (mm ²)	3961	2938		
D _e (mm)	62.94	54.20		
I _s (MPa)	1.23	0.80		
Size Factor, F	1.11	1.04		
I _{s(50)} (MPa)	1.37	0.83		

Test Methods	Notes
Point Load Strength : ASTM D5731-16	

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Project : Ground Investigation for Northland Corridor
 Location : Alternative to Brynderwyn Hills Section
 Client : NZTA C/- Aurecon & WSP NZ Ltd
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 21/08/25
 Sampling method : Core
 Sample description : SANDSTONE
 Sample condition : As Received

Project No : 1-C2466.16
 Lab Ref No : WL4708/8 -PL
 Client Ref No : -

Test Results

Lab Ref No :	1	2	Water Content and Density	
Location ID No :	BH2B_1106	BH2B_1106	Water content as received(%)	-
Depth (m) :	21.65-21.85	21.65-21.85	Water content at testing(%)	-
Test Type :	Axial	Diametral	Bulk density (t/m ³)	-
Width, W (mm) :	60.00		Dry density (t/m ³)	-
Diameter, D (mm) :	41.07	42.55		
Load, P (kN)	10.49	8.66		
D _e ² (mm ²)	3138	1811		
D _e (mm)	56.01	42.55		
I _s (MPa)	3.34	4.78		
Size Factor, F	1.05	0.93		
I _{s(50)} (MPa)	3.52	4.45		

Test Methods

Point Load Strength : ASTM D5731-16

Notes

Date tested : 24/11/25

Date reported : 19/12/25

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Thirushen Pillay

Designation : Senior Civil Engineering Technician

Date : 14/01/26

POINT LOAD STRENGTH OF ROCK TEST REPORT



Project : Ground Investigation for Northland Corridor
 Location : Alternative to Brynderwyn Hills Section
 Client : NZTA C/- Aurecon & WSP NZ Ltd
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 21/08/25
 Sampling method : Core
 Sample description : SANDSTONE
 Sample condition : As Received

Project No : 1-C2466.16
 Lab Ref No : WL4708/9 -PL
 Client Ref No : -

Test Results

Lab Ref No :	1	2	Water Content and Density	
Location ID No :	BH2B_1106	BH2B_1106	Water content as received(%)	-
Depth (m) :	22.10-22.30	22.10-22.30	Water content at testing(%)	-
Test Type :	Axial	Diametral	Bulk density (t/m ³)	-
Width, W (mm) :	60.07		Dry density (t/m ³)	-
Diameter, D (mm) :	42.05	43.00		
Load, P (kN)	11.98	9.48		
D _e ² (mm ²)	3216	1849		
D _e (mm)	56.71	43.00		
I _s (MPa)	3.73	5.13		
Size Factor, F	1.06	0.93		
I _{s(50)} (MPa)	3.94	4.79		

Test Methods

Point Load Strength : ASTM D5731-16

Notes

Date tested : 24/11/25

Date reported : 19/12/25

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Thirushen Pillay

Designation : Senior Civil Engineering Technician

Date : 14/01/26

POINT LOAD STRENGTH OF ROCK TEST REPORT



Project : Ground Investigation for Northland Corridor
 Location : Alternative to Brynderwyn Hills Section
 Client : NZTA C/- Aurecon & WSP NZ Ltd
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 26/08/25
 Sampling method : Core
 Sample description : UW SANDSTONE/SILTSTONE
 Sample condition : As Received

Project No : 1-C2466.16
 Lab Ref No : WL4708/38-PL
 Client Ref No : -

Test Results

Lab Ref No :	1	2	Water Content and Density	
Location ID No :	BH2B_1106	BH2B_1106	Water content as received(%)	0.68
Depth (m) :	39.15-39.50	39.15-39.50	Water content at testing(%)	0.68
Test Type :	Axial	Diametral	Bulk density (t/m ³)	2.49
Width, W (mm) :	61.00		Dry density (t/m ³)	2.48
Diameter, D (mm) :	46.80	56.20		
Load, P (kN)	2.97	1.86		
D _e ² (mm ²)	3635	3158		
D _e (mm)	60.29	56.20		
I _s (MPa)	0.82	0.59		
Size Factor, F	1.09	1.05		
I _{s(50)} (MPa)	0.89	0.62		

Test Methods

Point Load Strength : ASTM D5731-16

Notes

Date tested : 10/10/25

Date reported : 12/12/25

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Thirushen Pillay

Designation : Senior Civil Engineering Technician

Date : 07/01/26

**POINT LOAD STRENGTH OF ROCK
TEST REPORT**



Project : Ground Investigation for Northland Corridor
 Location : Alternative to Brynderwyn Hills Section
 Client : NZTA C/- Aurecon & WSP NZ Ltd
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 3/09/25
 Sampling method : Core
 Sample description : SANDSTONE
 Sample condition : As Received

Project No : 1-C2466.16
 Lab Ref No : WL4708/71-PL
 Client Ref No : -

Test Results

Lab Ref No :	1	2	Water Content and Density	
Location ID No :	BH2B_1117	BH2B_1117	Water content as received(%)	0.90
Depth (m) :	22.35-22.55	22.35-22.55	Water content at testing(%)	0.90
Test Type :	Axial	Diametral	Bulk density (t/m ³)	3.29
Width, W (mm) :	60.08		Dry density (t/m ³)	3.26
Diameter, D (mm) :	49.60	52.42		
Load, P (kN)	9.61	5.21		
D _e ² (mm ²)	3794	2748		
D _e (mm)	61.60	52.42		
I _s (MPa)	2.53	1.90		
Size Factor, F	1.10	1.02		
I _{s(50)} (MPa)	2.78	1.94		

Test Methods	Notes
Point Load Strength : ASTM D5731-16	

Date tested : 10/10/25
 Date reported : 18/12/25

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Designation : Senior Civil Engineering Technician
 Date : 07/01/26

POINT LOAD STRENGTH OF ROCK TEST REPORT



Project : Ground Investigation for Northland Corridor
 Location : Alternative to Brynderwyn Hills Section
 Client : NZTA C/- Aurecon & WSP NZ Ltd
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 23/09/25
 Sampling method : Core
 Sample description : UW SILTSTONE
 Sample condition : As Received

Project No : 1-C2466.16
 Lab Ref No : WL4708/39-PL
 Client Ref No : -

Test Results

Lab Ref No :	1	2	Water Content and Density	
Location ID No :	BH2B_1122	BH2B_1122	Water content as received(%)	-
Depth (m) :	23.50-23.80	23.50-23.80	Water content at testing(%)	-
Test Type :	Axial	Diametral	Bulk density (t/m ³)	-
Width, W (mm) :	60.02		Dry density (t/m ³)	-
Diameter, D (mm) :	45.60	46.20		
Load, P (kN)	0.78	0.36		
D _e ² (mm ²)	3485	2134		
D _e (mm)	59.03	46.20		
I _s (MPa)	0.22	0.17		
Size Factor, F	1.08	0.97		
I _{s(50)} (MPa)	0.24	0.16		

Test Methods	Notes
Point Load Strength : ASTM D5731-16	

Date tested : 10/10/25
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**POINT LOAD STRENGTH OF ROCK
TEST REPORT**



Project : Ground Investigation for Northland Corridor
 Location : Alternative to Brynderwyn Hills Section
 Client : NZTA C/- Aurecon & WSP NZ Ltd
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 29/08/25
 Sampling method : Core
 Sample description : GREYWACKE SANDSTONE
 Sample condition : As Received

Project No : 1-C2466.16
 Lab Ref No : WL4708/58-PL
 Client Ref No : -

Test Results

Lab Ref No :	1	2	Water Content and Density	
Location ID No :	BH2B_1144	BH2B_1144	Water content as received(%)	3.56
Depth (m) :	38.75-39.00	38.75-39.00	Water content at testing(%)	3.56
Test Type :	Axial	Diametral	Bulk density (t/m ³)	2.79
Width, W (mm) :	60.08		Dry density (t/m ³)	2.69
Diameter, D (mm) :	48.84	50.60		
Load, P (kN)	2.84	3.24		
D _e ² (mm ²)	3736	2560		
D _e (mm)	61.12	50.60		
I _s (MPa)	0.76	1.26		
Size Factor, F	1.09	1.01		
I _{s(50)} (MPa)	0.83	1.27		

Test Methods	Notes
Point Load Strength : ASTM D5731-16	

Date tested : 10/10/25
 Date reported : 25/11/25

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Thirushen Pillay

Designation : Senior Civil Engineering Technician
 Date : 14/01/26

POINT LOAD STRENGTH OF ROCK TEST REPORT



Project : Ground Investigation for Northland Corridor
 Location : Alternative to Brynderwyn Hills Section
 Client : NZTA C/- Aurecon & WSP NZ Ltd
 Contractor : N/A
 Sampled by : NC Site Team
 Date sampled : 29/08/25
 Sampling method : Core
 Sample description : GREYWACKE SANDSTONE
 Sample condition : As Received

Project No : 1-C2466.16
 Lab Ref No : WL4708/61-PL
 Client Ref No : -

Test Results

Lab Ref No :	1	2	Water Content and Density	
Location ID No :	BH2B_1144	BH2B_1144	Water content as received(%)	0.28
Depth (m) :	46.70-46.85	46.70-46.85	Water content at testing(%)	0.28
Test Type :	Axial	Diametral	Bulk density (t/m ³)	2.33
Width, W (mm) :	60.00		Dry density (t/m ³)	2.32
Diameter, D (mm) :	50.04	48.42		
Load, P (kN)	5.24	3.48		
D _e ² (mm ²)	3823	2344		
D _e (mm)	61.83	48.42		
I _s (MPa)	1.37	1.48		
Size Factor, F	1.10	0.99		
I _{s(50)} (MPa)	1.51	1.46		

Test Methods

Point Load Strength : ASTM D5731-16

Notes

Date tested : 19/01/26
 Date reported : 20/01/26

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Thirushen Pillay
 Designation : Senior Civil Engineering Technician
 Date : 21/01/26