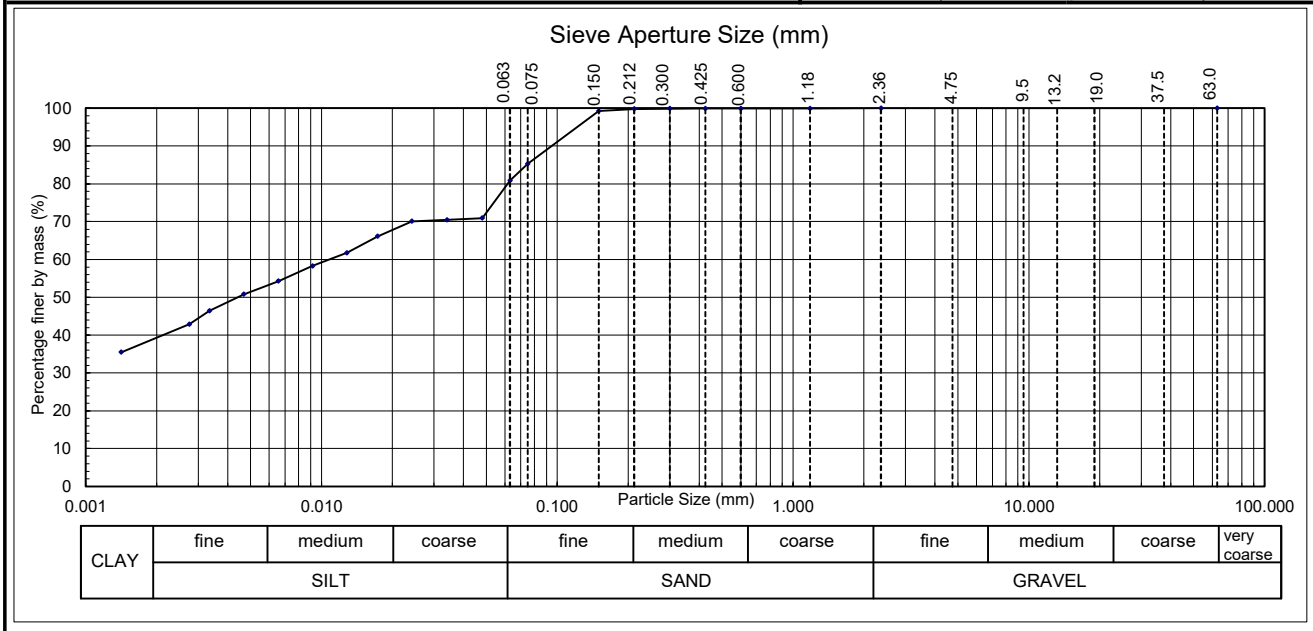
PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Borehole No:	BH2B_1101 Depth: 3.50-3.95 metres
Sampled by :	NC Site Team
Date received :	24/10/25 Specific Depth: 3.50-3.95m
Sampling method :	SPT
Sample condition :	As received
Sample description :	Clayey SILT with some sand
Solid Particle Density (t/m^3):	2.71 Tested
Water Content (as received):	52.7 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/150-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	--	0.300	100	0.0481	71	0.0066	54
37.5	--	2.36	100	0.212	100	0.0341	71	0.0047	51
19.0	--	1.18	100	0.150	99	0.0241	70	0.0034	46
13.2	--	0.600	100	0.075	85	0.0173	66	0.0027	43
9.5	--	0.425	100	0.063	81	0.0128	62	0.0014	35
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0092	58		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 8.6 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 04-06/11/25

Date Reported: 12/11/25

Approved Signatory Thirushen Pillay

Designation : *Senior Civil Engineering Technician*

Date : 17/11/2025

ACCREDITED IANZ TESTING LABORATORY

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WSP
Auckland (Ride Way)
Quality Management Systems Certified to ISO 9001

7A Ride Way, Albany
Private Bag 101982, NS Mail Centre, North Shore City, 0745, Auckland, New Zealand

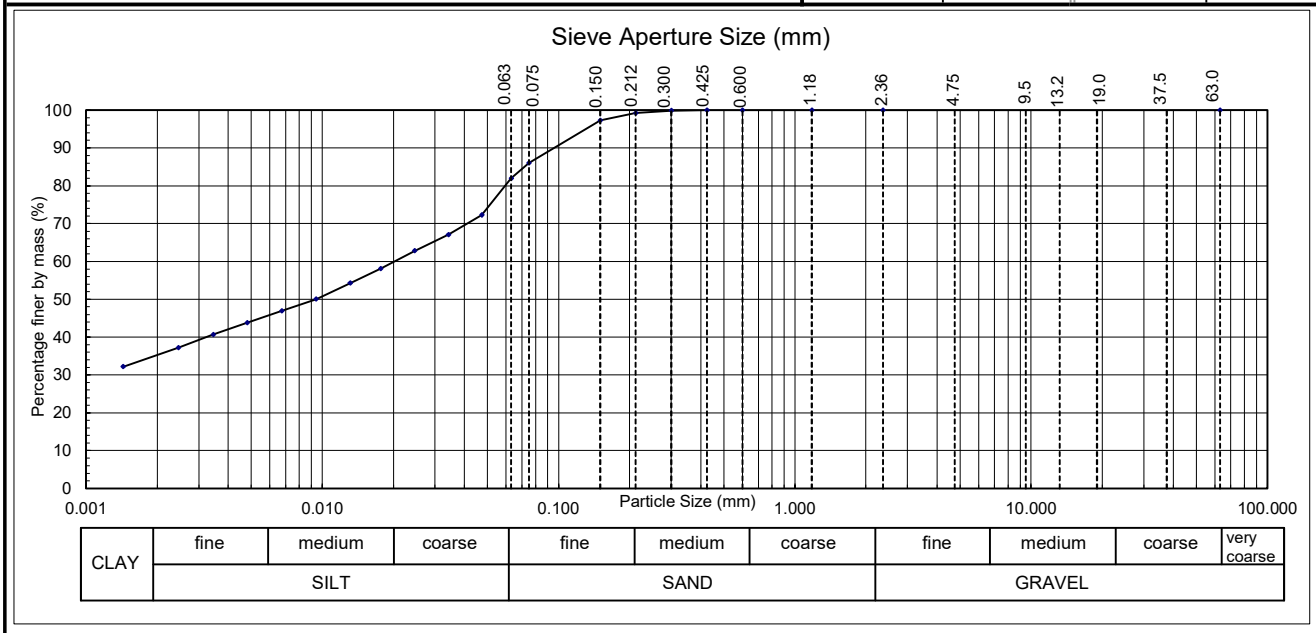
Telephone 09 415 4660
Website www.wsp.com/nz

PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Borehole No:	BH2B_1104 Depth: 3.00-3.45 metres
Sampled by :	NC Site Team
Date received :	04/09/25 Specific Depth: 3.00-3.45m
Sampling method :	SPT
Sample condition :	As received
Sample description :	Clayey SILT with some sand
Solid Particle Density (t/m^3):	2.71 Assumed
Water Content (as received):	34.6 %

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

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	--	0.300	100	0.0473	72	0.0067	47
37.5	--	2.36	100	0.212	99	0.0342	67	0.0048	44
19.0	--	1.18	100	0.150	97	0.0246	63	0.0034	41
13.2	--	0.600	100	0.075	86	0.0177	58	0.0025	37
9.5	--	0.425	100	0.063	82	0.0131	54	0.0014	32
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0094	50		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 8.9 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 11-12/9/25

Date Reported: 01/10/25

Approved Signatory Thirushen Pillay
Designation : *Senior Civil Engineering Technician*
Date : 03/10/2025

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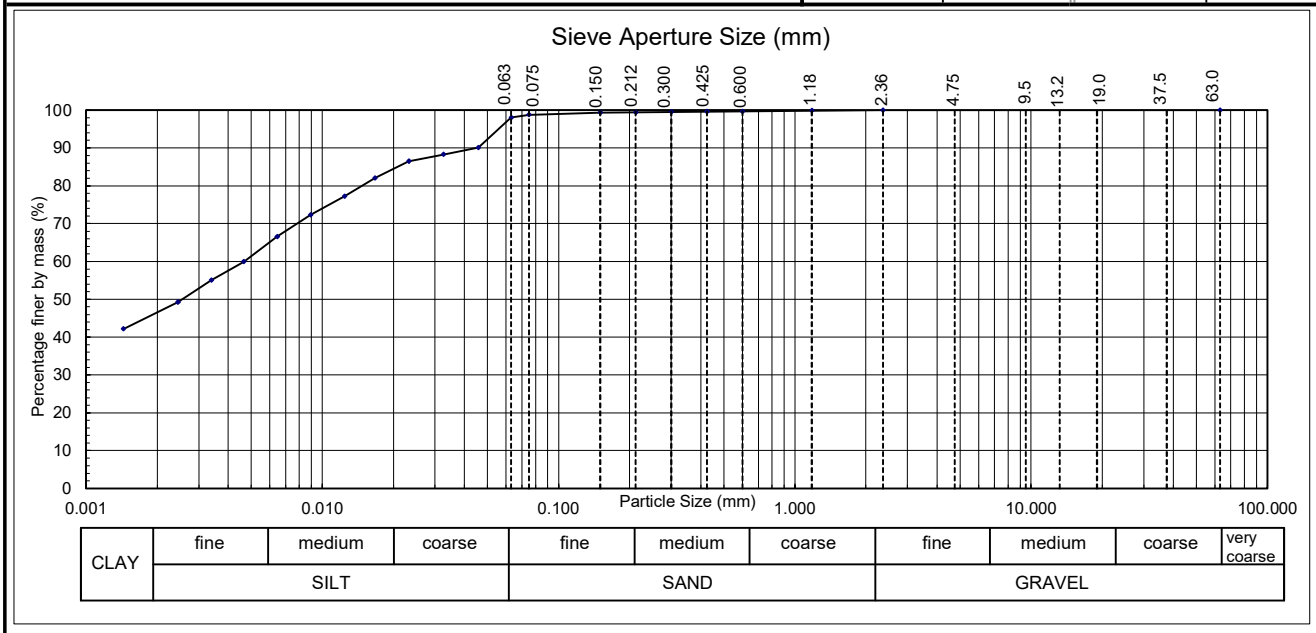
PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Borehole No:	BH2B_1105 Depth: 4.50-4.95 metres
Sampled by :	NC Site Team
Date received :	11/09/25 Specific Depth: 4.50-4.95m
Sampling method :	SPT
Sample condition :	As received
Sample description :	Clayey SILT with traces of sand
Solid Particle Density (t/m^3):	2.71 Assumed
Water Content (as received):	56.6 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/27-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	--	0.300	100	0.0458	90	0.0064	67
37.5	--	2.36	100	0.212	99	0.0326	88	0.0047	60
19.0	--	1.18	100	0.150	99	0.0232	87	0.0034	55
13.2	--	0.600	100	0.075	99	0.0167	82	0.0025	49
9.5	--	0.425	100	0.063	98	0.0124	77	0.0014	42
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0089	72		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 9.1 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 25/09/25-01/10/25

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Date Reported: 01/10/25

Approved Signatory Thirushen Pillay
Designation : *Senior Civil Engineering Technician*
Date : 22/10/2025

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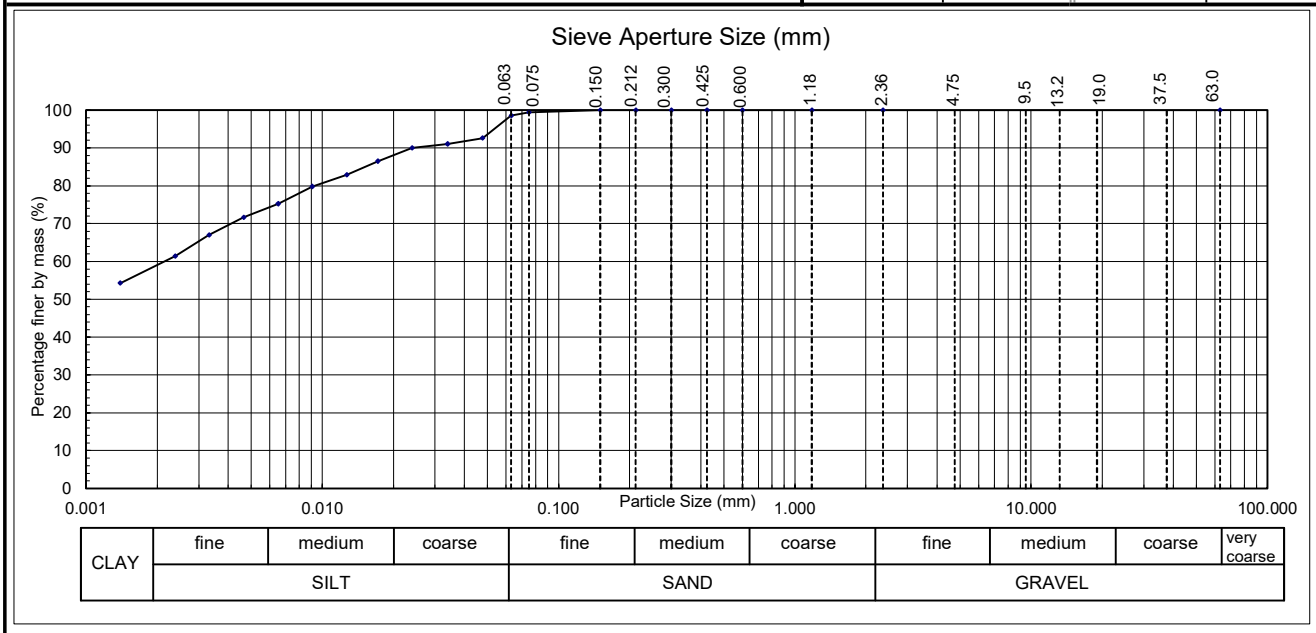
PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Borehole No:	BH2B_1106 Depth: 3.00-3.45 metres
Sampled by :	NC Site Team
Date received :	04/09/25 Specific Depth: 3.00-3.45m
Sampling method :	SPT
Sample condition :	As received
Sample description :	Silty CLAY with traces of sand
Solid Particle Density (t/m^3):	2.70 Assumed
Water Content (as received):	66.3 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/5-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	--	0.300	100	0.0477	93	0.0065	75
37.5	--	2.36	100	0.212	100	0.0339	91	0.0046	72
19.0	--	1.18	100	0.150	100	0.0240	90	0.0033	67
13.2	--	0.600	100	0.075	99	0.0172	86	0.0024	61
9.5	--	0.425	100	0.063	99	0.0127	83	0.0014	54
Note: "--" denotes sieve not used and/or hydrometer analysis not tested						0.0091	80		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 9.1 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 16-17/9/25

This report may only be reproduced in full

Date Reported: 01/10/25

Approved Signatory Thirushen Pillay

Designation : *Senior Civil Engineering Technician*

Date : 03/10/2025

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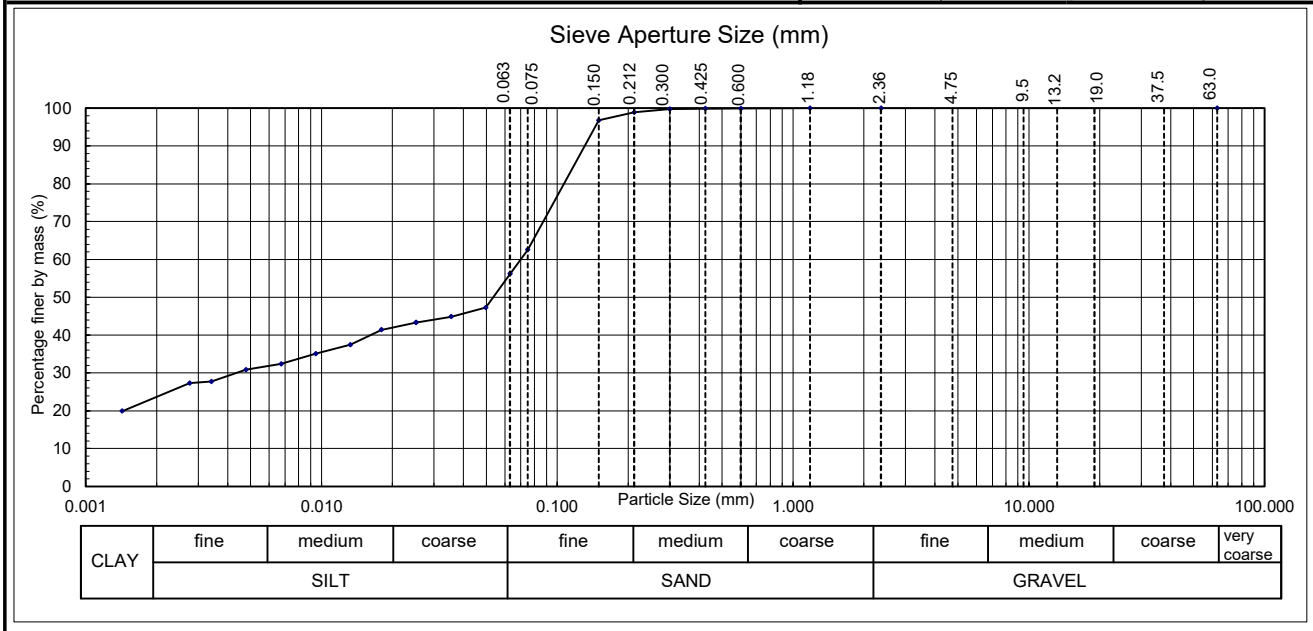
PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Borehole No:	BH2B_1107 Depth: 3.50-3.95 metres
Sampled by :	NC Site Team
Date received :	24/10/25 Specific Depth: 3.50-3.95m
Sampling method :	SPT
Sample condition :	As received
Sample description :	Sandy clayey SILT
Solid Particle Density (t/m^3):	2.80 Tested
Water Content (as received):	50.3 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/154-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	--	0.300	100	0.0497	47	0.0067	32
37.5	--	2.36	100	0.212	99	0.0354	45	0.0048	31
19.0	--	1.18	100	0.150	97	0.0252	43	0.0034	28
13.2	--	0.600	100	0.075	63	0.0179	41	0.0028	27
9.5	--	0.425	100	0.063	56	0.0133	37	0.0014	20
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0095	35		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 8.7 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 04-06/11/25 This report may only be reproduced in full

Date Reported: 12/11/25

Approved Signatory Thirushen Pillay
Designation : *Senior Civil Engineering Technician*
Date : 17/11/2025

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Auckland (Ride Way)
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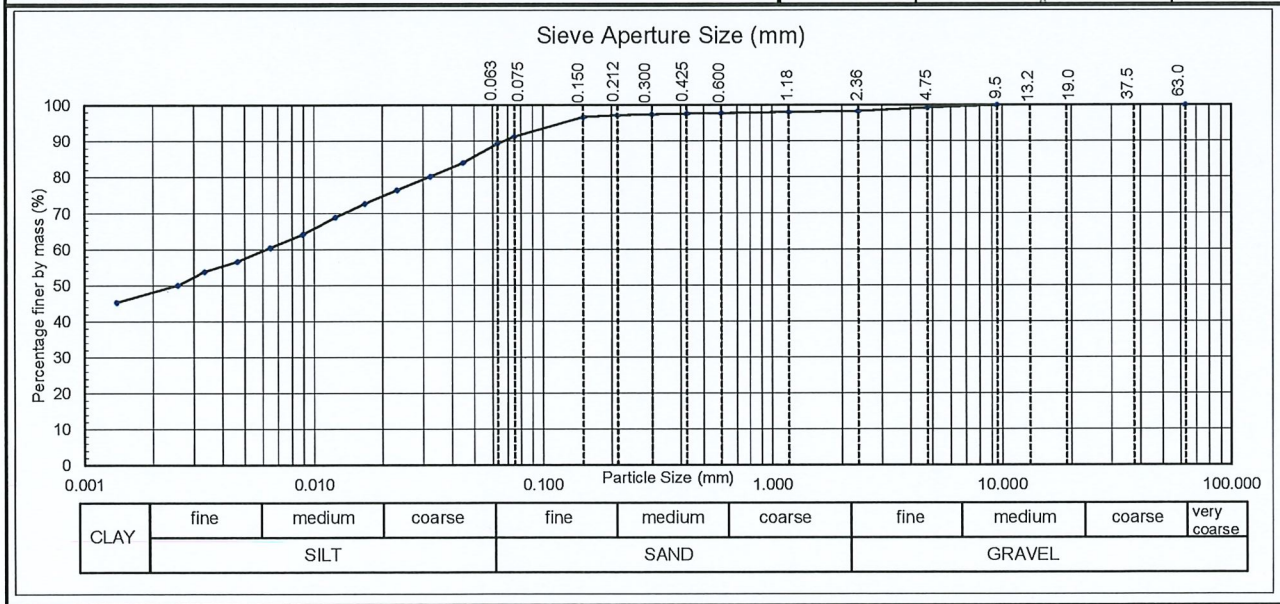
PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd
Order No:	-
Contractor :	-
Borehole No:	BH2B_1108 Depth: 3.50-3.95 metres
Sampled by :	NC Site Team
Date received :	31/10/25
Sampling method :	SPT
Sample condition :	Natural; as excavated
Sample description :	Refer to BH2B_1108 log report
Solid Particle Density (t/m^3):	2.68 Assumed
Water Content (as received):	45.3 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/161-Hydro
Client Ref:	-

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	99	0.300	97	0.0448	84	0.0065	60
37.5	--	2.36	98	0.212	97	0.0322	80	0.0046	57
19.0	--	1.18	98	0.150	97	0.0232	76	0.0033	54
13.2	--	0.600	98	0.075	91	0.0167	73	0.0026	50
9.5	100	0.425	98	0.063	89	0.0124	69	0.0014	45
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0089	64		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 10/11/25

Date Reported: 17/11/25

Approved Signatory

Designation : *Senior Civil Engineering Technician*

Date : 17/11/25

ACCREDITED IANZ TESTING LABORATORY

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WSP
Christchurch (Hayton Rd)
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Telephone 03 343 0739
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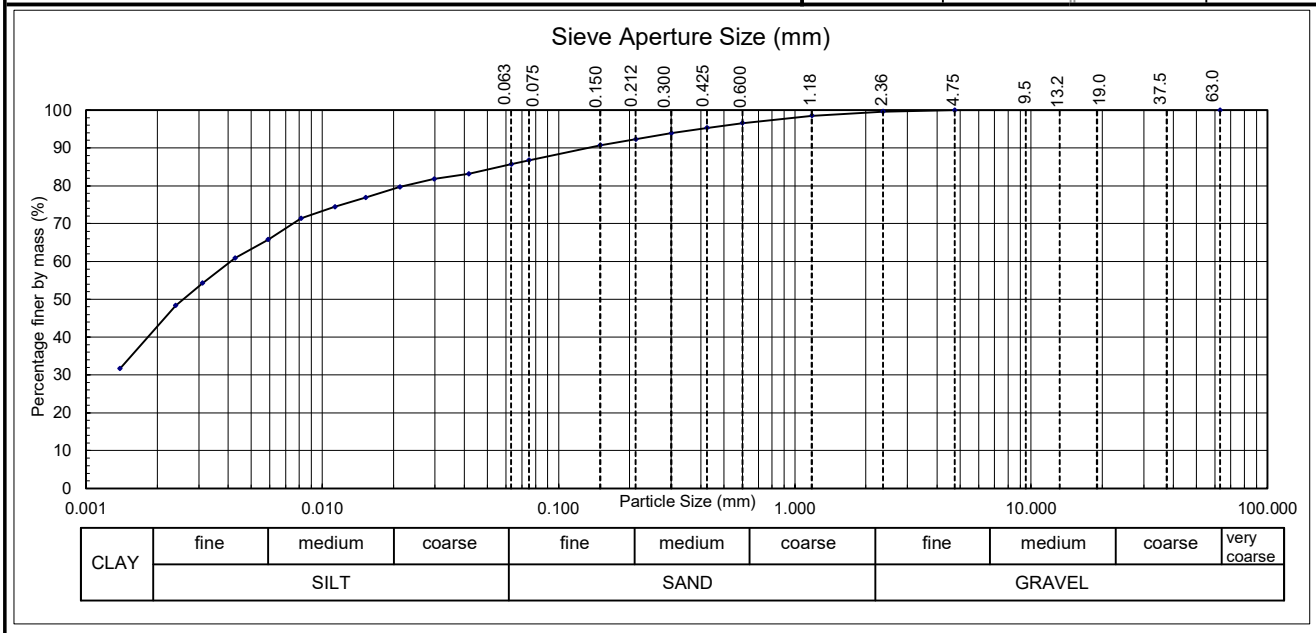
PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Borehole No:	BH2B_1109 Depth: 6.00-6.45 metres
Sampled by :	NC Site Team
Date received :	24/09/25 Specific Depth: 6.00-6.45m
Sampling method :	SPT
Sample condition :	As received
Sample description :	Silty CLAY with some sand
Solid Particle Density (t/m^3):	2.81 Tested
Water Content (as received):	34.6 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/102-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	100	0.300	94	0.0417	83	0.0059	66
37.5	--	2.36	100	0.212	92	0.0297	82	0.0043	61
19.0	--	1.18	99	0.150	91	0.0213	80	0.0031	54
13.2	--	0.600	97	0.075	87	0.0153	77	0.0024	48
9.5	--	0.425	95	0.063	86	0.0113	74	0.0014	32
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0081	71		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 8.9 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 29/09/25-01/10/25

Date Reported: 16/10/25

Approved Signatory Thirushen Pillay

Designation : *Senior Civil Engineering Technician*

Date : 22/10/2025

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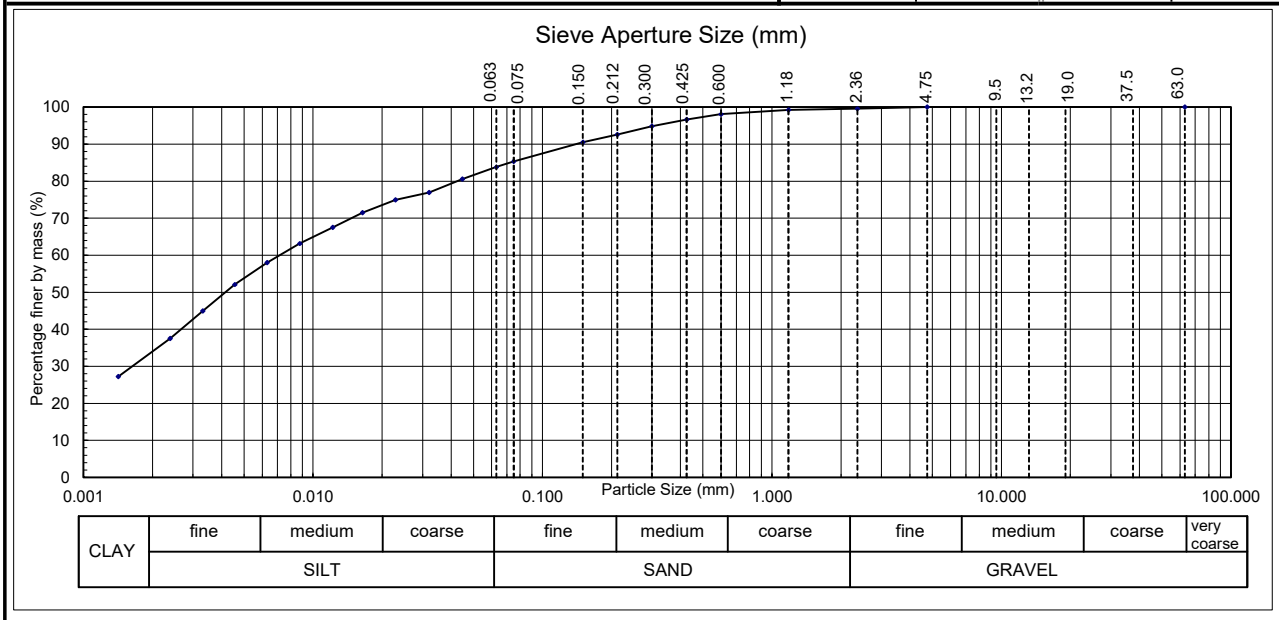
PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Alternative to Brynderwyn Hills Section
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Borehole No:	BH2B_1110 Depth: 4.50-4.95 metres
Sampled by :	NC Site Team
Date received :	21/11/25 Specific Depth: 4.50-4.95m
Sampling method :	SPT
Sample condition :	As received
Sample description :	Clayey SILT with some sand
Solid Particle Density (t/m^3):	2.70 Assumed
Water Content (as received):	46.7 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/112-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	100	0.300	95	0.0447	81	0.0063	58
37.5	--	2.36	100	0.212	93	0.0321	77	0.0046	52
19.0	--	1.18	99	0.150	91	0.0229	75	0.0033	45
13.2	--	0.600	98	0.075	85	0.0164	71	0.0024	38
9.5	--	0.425	97	0.063	84	0.0122	68	0.0014	27
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0088	63		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 8.7 (Electrometric Method) **All information supplied by Client**

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 25-26/11/25

Date Reported: 28/11/2025

Approved Signatory Thirushen Pillay
Designation : *Senior Civil Engineering Technician*
Date : 17/12/2025

ACCREDITED IANZ TESTING LABORATORY

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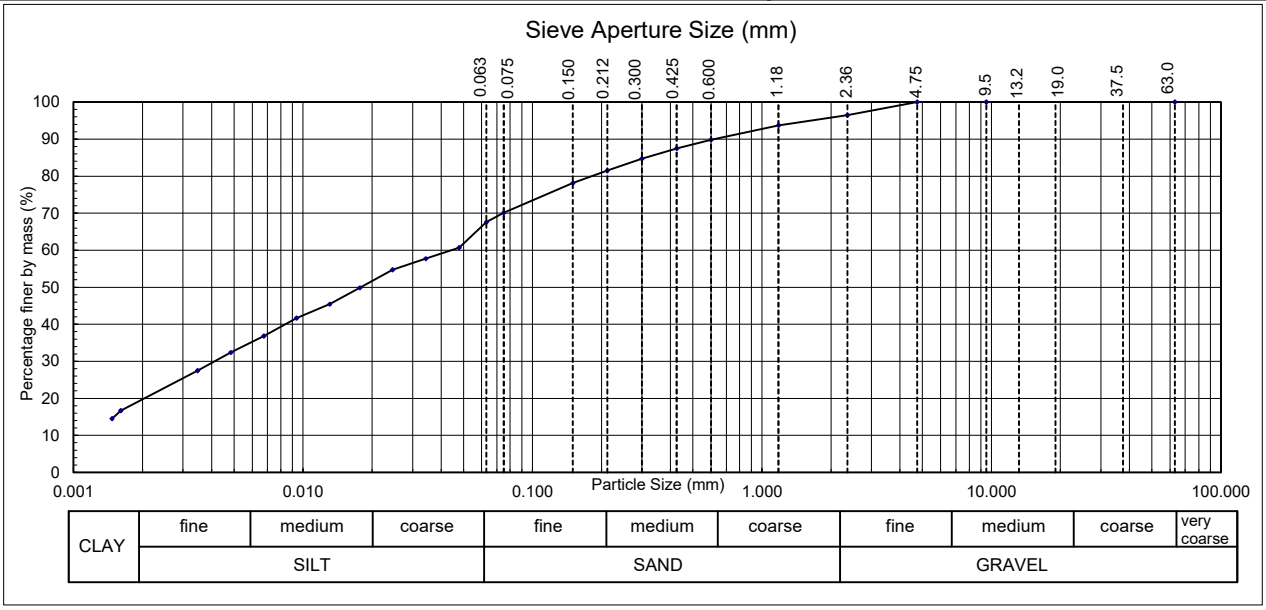
PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Alternative to Brynderwyn Hills Section
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Borehole No:	BH2B_1110 Depth: 13.50-13.95 metres
Sampled by :	NC Site Team
Date received :	21/11/25 Specific Depth: 13.50-13.95m
Sampling method :	SPT
Sample condition :	As received
Sample description :	Sandy SILT with some clay and traces of gravel
Solid Particle Density (t/m^3):	2.70 Assumed
Water Content (as received):	41.3 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/147-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	100	0.300	85	0.0480	61	0.0067	37
37.5	--	2.36	96	0.212	82	0.0343	58	0.0048	32
19.0	--	1.18	94	0.150	78	0.0246	55	0.0035	28
13.2	--	0.600	90	0.075	70	0.0177	50	0.0016	17
9.5	100	0.425	87	0.063	68	0.0131	45	0.0015	15
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0094	42		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 8.8 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 24-28/11/25

Date Reported: 28/11/2025

Approved Signatory Thirushen Pillay
Designation : *Senior Civil Engineering Technician*
Date : 18/12/2025

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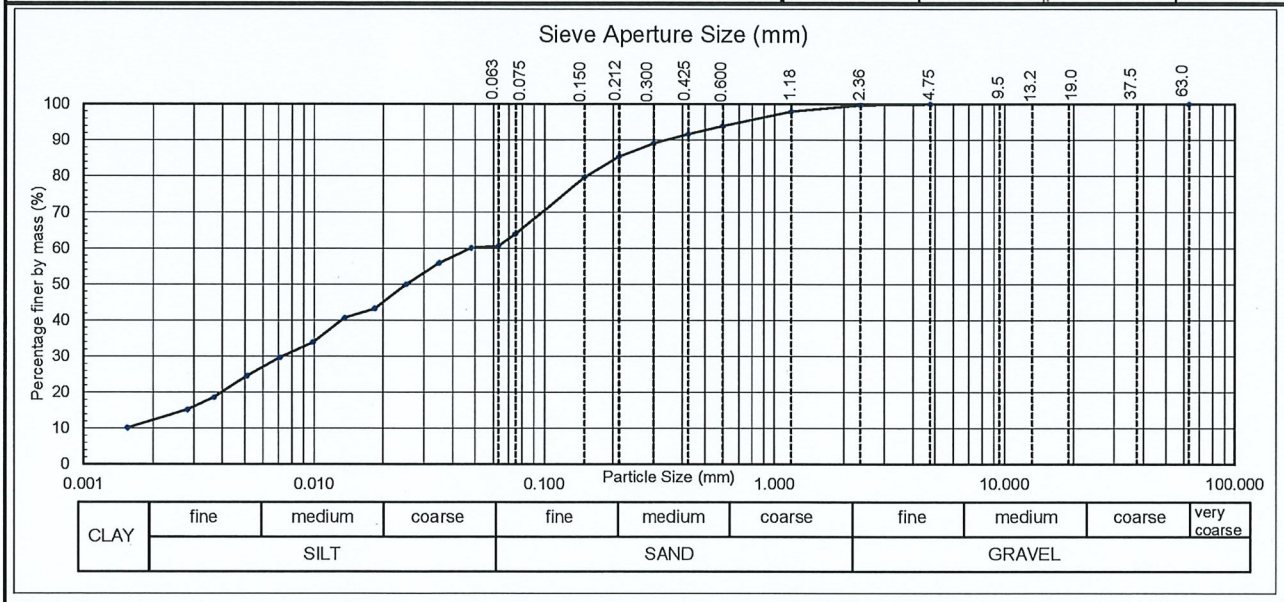
PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd
Order No:	-
Contractor :	-
Borehole No:	BH2B_1111 Depth: 9.00-9.45 metres
Sampled by :	NC Site Team
Date received :	03/10/25
Sampling method :	SPT
Sample condition :	Natural; as excavated
Sample description :	Refer to BH2B_1111 log report
Solid Particle Density (t/m^3):	2.68 Assumed
Water Content (as received):	39.7 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/118-Hydro
Client Ref:	-

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	100	0.300	89	0.0484	60	0.0071	30
37.5	--	2.36	100	0.212	85	0.0349	56	0.0051	25
19.0	--	1.18	98	0.150	80	0.0252	50	0.0037	19
13.2	--	0.600	94	0.075	64	0.0184	43	0.0028	15
9.5	--	0.425	92	0.063	61	0.0136	41	0.0015	10
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0099	34		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 16/10/25

Date Reported: 23/10/25

Approved Signatory

Designation : *Senior Civil Engineering Technician*

Date : 23/10/25

ACCREDITED IANZ TESTING LABORATORY

Test results indicated as not accredited are outside the scope of the laboratory's accreditation

WSP
Christchurch (Hayton Rd)
Quality Management Systems Certified to ISO 9001

52C Hayton Rd
PO Box 1482, Christchurch Mail Centre,
8140, Christchurch, New Zealand

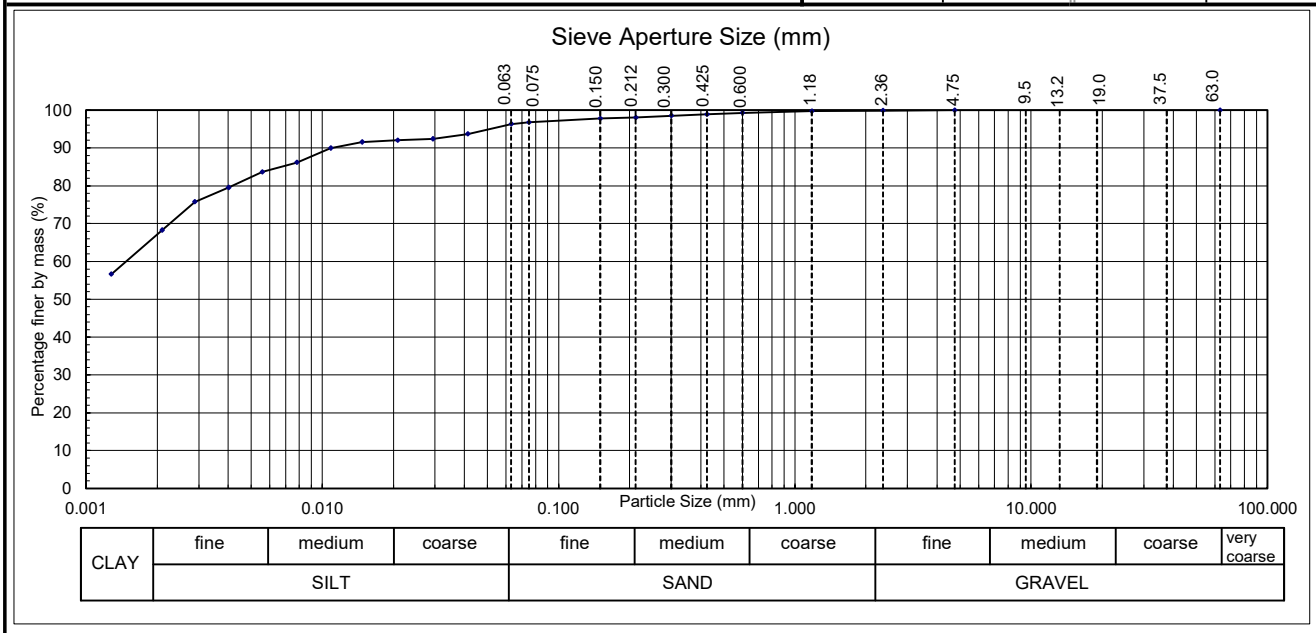
Telephone 03 343 0739
Website www.wsp.com/nz

PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Borehole No:	BH2B_1113 Depth: 3.50-3.95 metres
Sampled by :	NC Site Team
Date received :	05/11/25 Specific Depth: 3.50-3.95m
Sampling method :	SPT
Sample condition :	As received
Sample description :	Silty CLAY with traces of sand
Solid Particle Density (t/m^3):	2.81 Tested
Water Content (as received):	54.1 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/168-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	100	0.300	98	0.0413	94	0.0056	84
37.5	--	2.36	100	0.212	98	0.0294	92	0.0040	80
19.0	--	1.18	100	0.150	98	0.0208	92	0.0029	76
13.2	--	0.600	99	0.075	97	0.0147	92	0.0021	68
9.5	--	0.425	99	0.063	96	0.0109	90	0.0013	57
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0078	86		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 9.0 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 12-14/11/25

Date Reported: 19/11/25

Approved Signatory Thirushen Pillay
Designation : *Senior Civil Engineering Technician*
Date : 23/11/2025

ACCREDITED IANZ TESTING LABORATORY

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Auckland (Ride Way)
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7A Ride Way, Albany
Private Bag 101982, NS Mail Centre, North Shore City, 0745, Auckland, New Zealand

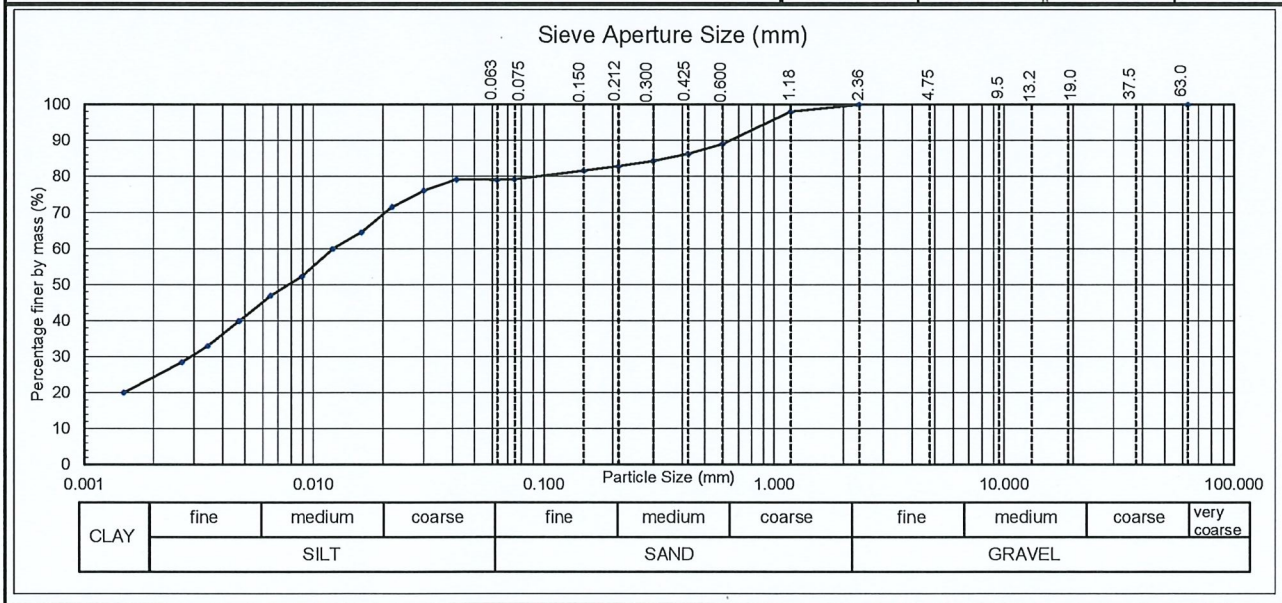
Telephone 09 415 4660
Website www.wsp.com/nz

PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2B - Bryderwyn to Marsden Point
Client :	NZTA C/- Aurecon & WSP NZ Ltd
Order No:	-
Contractor :	-
Borehole No:	BH2B_1114 Depth: 4.68-5.13 metres
Sampled by :	WSP
Date received :	10/10/25
Sampling method :	SPT
Sample condition :	As received
Sample description :	Refer to BH2B_1114 log report
Solid Particle Density (t/m^3):	2.68 Assumed
Water Content (as received):	24.8 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/128-Hydro
Client Ref:	-

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	--	0.300	84	0.0417	79	0.0065	47
37.5	--	2.36	100	0.212	83	0.0301	76	0.0047	40
19.0	--	1.18	98	0.150	82	0.0218	72	0.0035	33
13.2	--	0.600	89	0.075	79	0.0161	65	0.0027	28
9.5	--	0.425	86	0.063	79	0.0121	60	0.0015	20
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0089	52		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

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Date Tested: 16/10/25

Date Reported: 22/10/25

Approved Signatory

Designation : *Senior Civil Engineering Technician*

Date : 22/10/25

ACCREDITED IANZ TESTING LABORATORY

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Christchurch (Hayton Rd)
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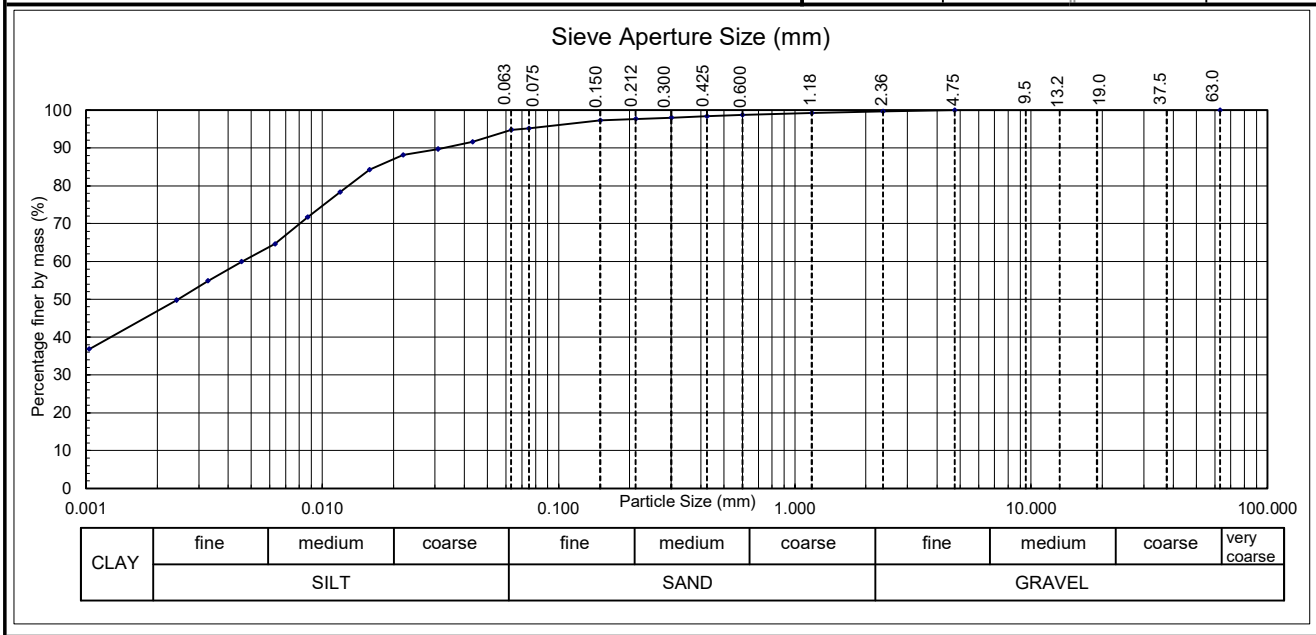
Telephone 03 343 0739
Website www.wsp.com/nz

PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Borehole No:	BH2B_1115 Depth: 3.00-3.45 metres
Sampled by :	NC Site Team
Date received :	04/09/25 Specific Depth: 3.00-3.45m
Sampling method :	SPT
Sample condition :	As received
Sample description :	Clayey SILT with minor sand
Solid Particle Density (t/m^3):	2.73 Assumed
Water Content (as received):	44.5 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/12-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	100	0.300	98	0.0432	92	0.0063	65
37.5	--	2.36	100	0.212	98	0.0309	90	0.0045	60
19.0	--	1.18	99	0.150	97	0.0220	88	0.0033	55
13.2	--	0.600	99	0.075	95	0.0159	84	0.0024	50
9.5	--	0.425	98	0.063	95	0.0119	78	0.0010	37
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0087	72		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 9.1 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 19-23/09/25 This report may only be reproduced in full

Date Reported: 01/10/25

Approved Signatory Thirushen Pillay
Designation : *Senior Civil Engineering Technician*
Date : 03/10/2025

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Auckland (Ride Way)
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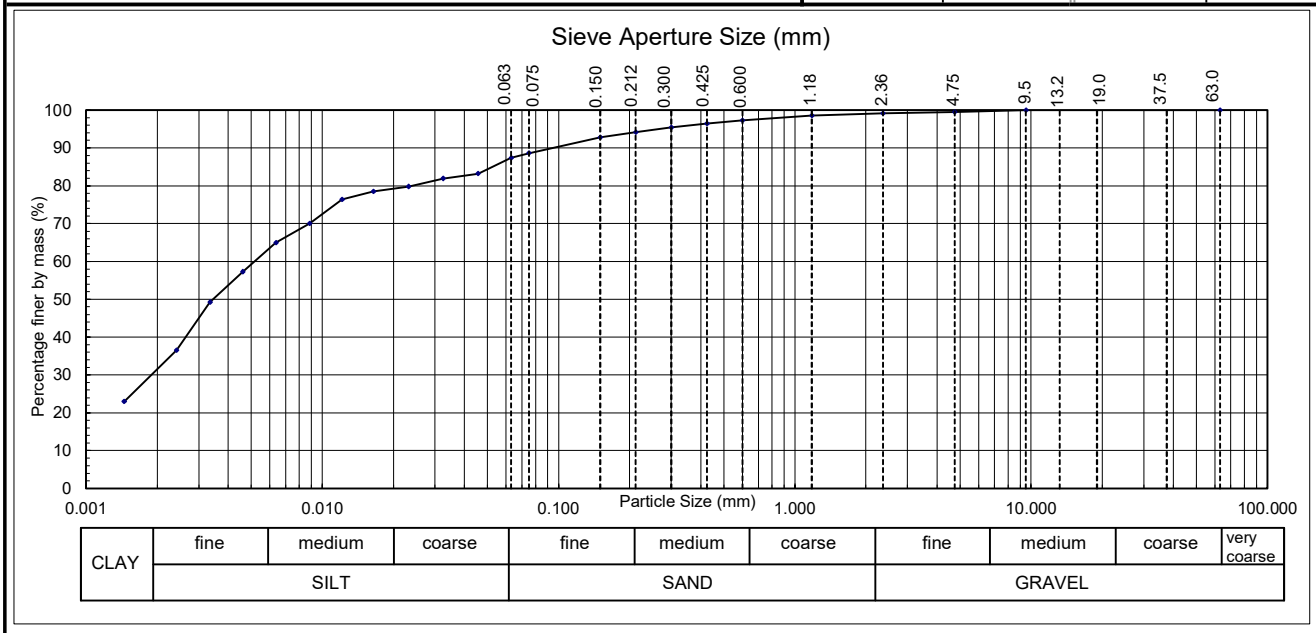
PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Borehole No:	BH2B_1116 Depth: 1.50-1.95 metres
Sampled by :	NC Site Team
Date received :	11/09/25 Specific Depth: 1.50-1.95m
Sampling method :	SPT
Sample condition :	As received
Sample description :	Clayey SILT with minor sand and traces of gravel
Solid Particle Density (t/m^3):	2.79 Tested
Water Content (as received):	51.5 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/41-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	99	0.300	95	0.0457	83	0.0064	65
37.5	--	2.36	99	0.212	94	0.0325	82	0.0046	57
19.0	--	1.18	99	0.150	93	0.0232	80	0.0034	49
13.2	--	0.600	97	0.075	89	0.0165	79	0.0024	37
9.5	100	0.425	96	0.063	87	0.0121	76	0.0015	23
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0088	70		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 9.0 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 08-09/10/25

Date Reported: 13/10/25

Approved Signatory Thirushen Pillay
Designation : *Senior Civil Engineering Technician*
Date : 13/10/2025

ACCREDITED IANZ TESTING LABORATORY

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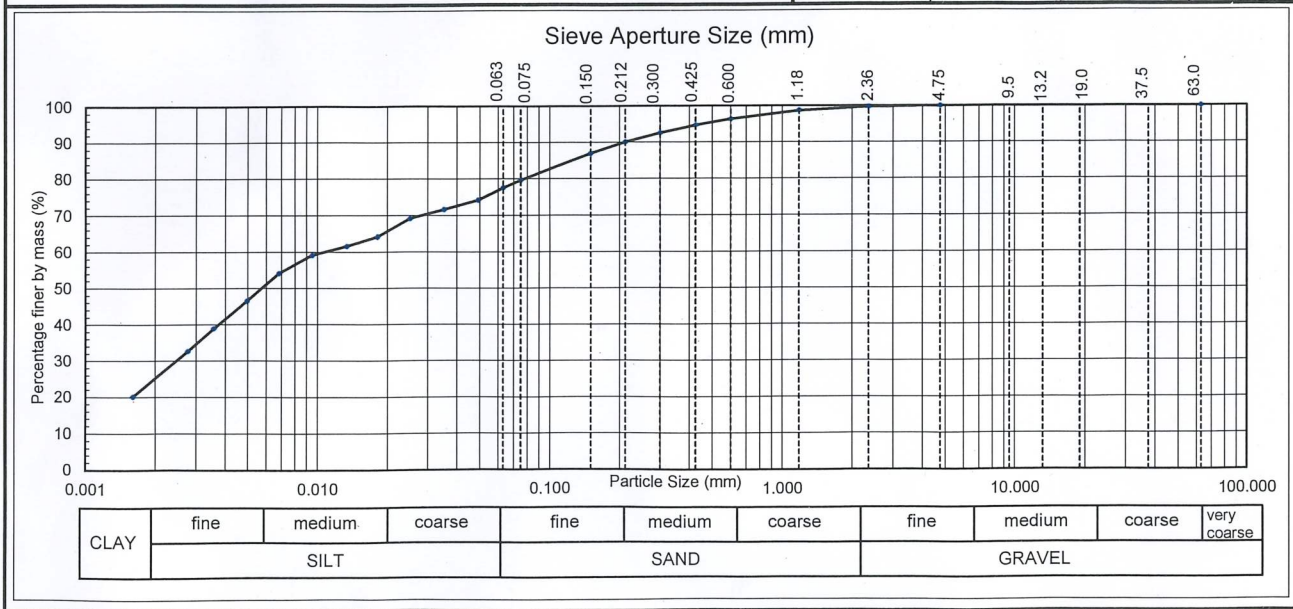
Telephone 09 415 4660
Website www.wsp.com/nz

PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation For Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon Ltd & WSP NZ Ltd
Client / sample ref :	--
Contractor :	N/A
Borehole no :	BH2B_1116 Depth: 12.00 - 12.45 metres
Sampled by :	NC Site Team
Date received :	23 September 2025
Sampling method :	SPT
Sample condition :	As Received
Sample description :	Clayey, sandy SILT
Solid particle density :	2.65 t/m^3 (assumed)
Water content :	48.1 % (as received)

Project No:	1-C2466.16
Lab Ref No:	WL4708/43-HYD
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	100	0.300	93	0.0492	74	0.0068	54
37.5	--	2.36	100	0.212	90	0.0352	72	0.0050	47
19.0	--	1.18	99	0.150	87	0.0252	69	0.0036	39
13.2	--	0.600	96	0.075	80	0.0182	64	0.0028	33
9.5	--	0.425	95	0.063	78	0.0134	62	0.0016	20
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0095	59		



Test Method	Notes
Particle Size Analysis : NZS 4402 : 1986, Test 2.8.4 (Washed Grading & Hydrometer Method)	pH suspension : 9.0 (pH Indicator stick) Sample description in accordance with NZ Geotechnical Society Inc, notes. All information supplied by client.

Date Tested: 8 October 2025

Date Reported: 8 October 2025

Approved Signatory

Designation : *Intermediate Laboratory Technician*

Date : 8 October 2025

ACCREDITED IANZ TESTING LABORATORY

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

WSP
Tauranga (Chadwick Rd)
Quality Management Systems Certified to ISO 9001

278 Chadwick Rd
PO Box 9057, 3142, Tauranga, New Zealand

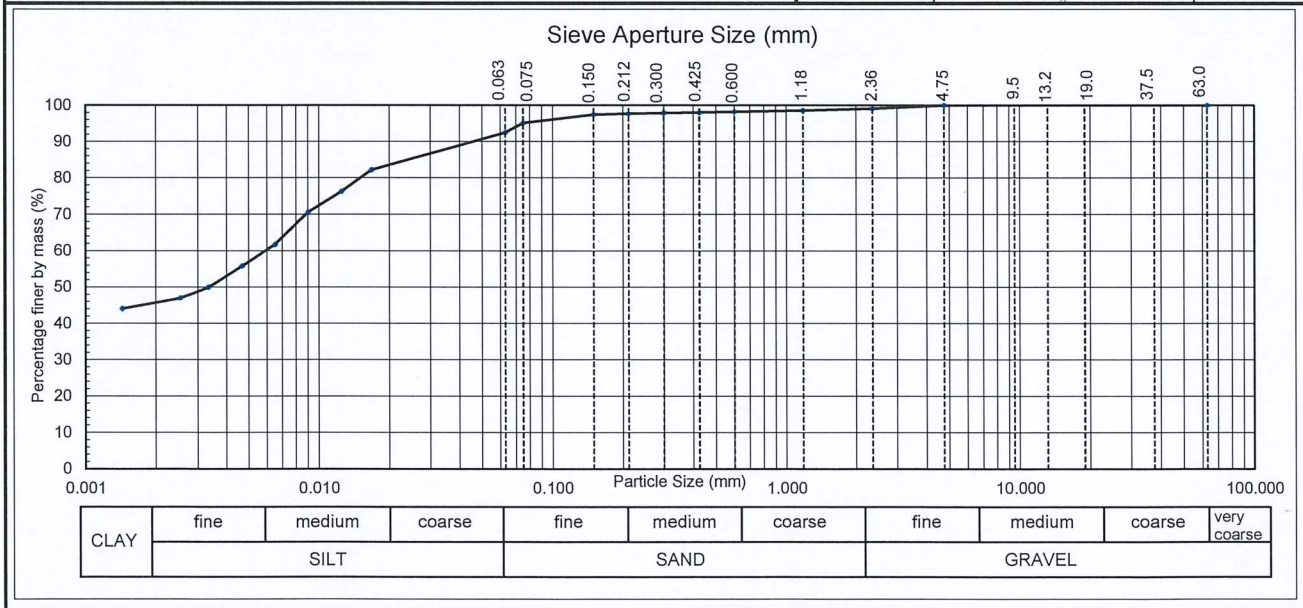
Telephone 07 578 5425
Website www.wsp.com/nz

PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation For Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon Ltd & WSP NZ Ltd
Client / sample ref :	--
Contractor :	N/A
Borehole no :	BH2B_1117 Depth: 1.50 - 1.95 metres
Sampled by :	NC Site Team
Date received :	23 September 2025
Sampling method :	SPT
Sample condition :	As Received
Sample description :	Silty CLAY with minor sand & a trace of gravel
Solid particle density :	2.83 t/m^3 (tested)
Water content :	61.4 % (as received)

Project No:	1-C2466.16
Lab Ref No:	WL4708/44-HYD
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	100	0.300	98	0.0168	82	0.0026	47
37.5	--	2.36	99	0.212	98	0.0125	76	0.0014	44
19.0	--	1.18	99	0.150	97	0.0090	71	--	--
13.2	--	0.600	98	0.075	95	0.0065	62	--	--
9.5	--	0.425	98	0.063	92	0.0047	56	--	--
Note: "--" denotes sieve not used and/or hydrometer analysis not tested						0.0034	50		



Test Method	Notes
Particle Size Analysis : NZS 4402 : 1986, Test 2.8.4 (Washed Grading & Hydrometer Method)	pH suspension : 9.0 (pH Indicator stick) Sample description in accordance with NZ Geotechnical Society Inc, notes. All information supplied by client.

Date Tested: 8 October 2025

Date Reported: 14 October 2025

Approved Signatory

Designation : *Intermediate Laboratory Technician*

Date : 14 October 2025

ACCREDITED IANZ TESTING LABORATORY

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

WSP
Tauranga (Chadwick Rd)
Quality Management Systems Certified to ISO 9001

278 Chadwick Rd
PO Box 9057, 3142, Tauranga, New Zealand

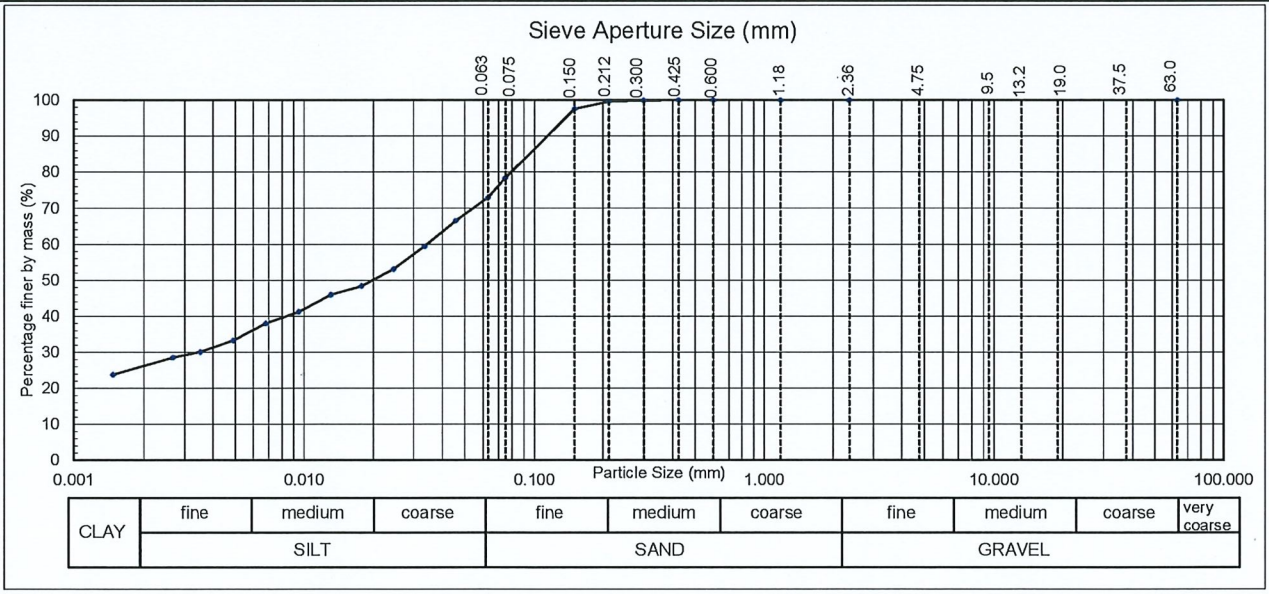
Telephone 07 578 5425
Website www.wsp.com/nz

PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2B - Bryderwyn to Marsden Point
Client :	NZTA C/- Aurecon & WSP NZ Ltd
Order No:	-
Contractor :	-
Borehole No:	BH2B_1122 Depth: 3.50-3.95 metres
Sampled by :	WSP
Date received :	03/10/25
Sampling method :	SPT
Sample condition :	As received
Sample description :	Refer to BH2B_1122 log report
Solid Particle Density (t/m^3):	2.68 Assumed
Water Content (as received):	30.5 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/120-Hydro
Client Ref:	-

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	--	0.300	100	0.0458	67	0.0068	38
37.5	--	2.36	100	0.212	100	0.0335	59	0.0049	33
19.0	--	1.18	100	0.150	98	0.0245	53	0.0035	30
13.2	--	0.600	100	0.075	78	0.0177	48	0.0027	29
9.5	--	0.425	100	0.063	73	0.0131	46	0.0015	24
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0095	41		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 21/10/25

Date Reported: 21/10/25

Approved Signatory

Designation : *Senior Civil Engineering Technician*

Date : 21/10/25

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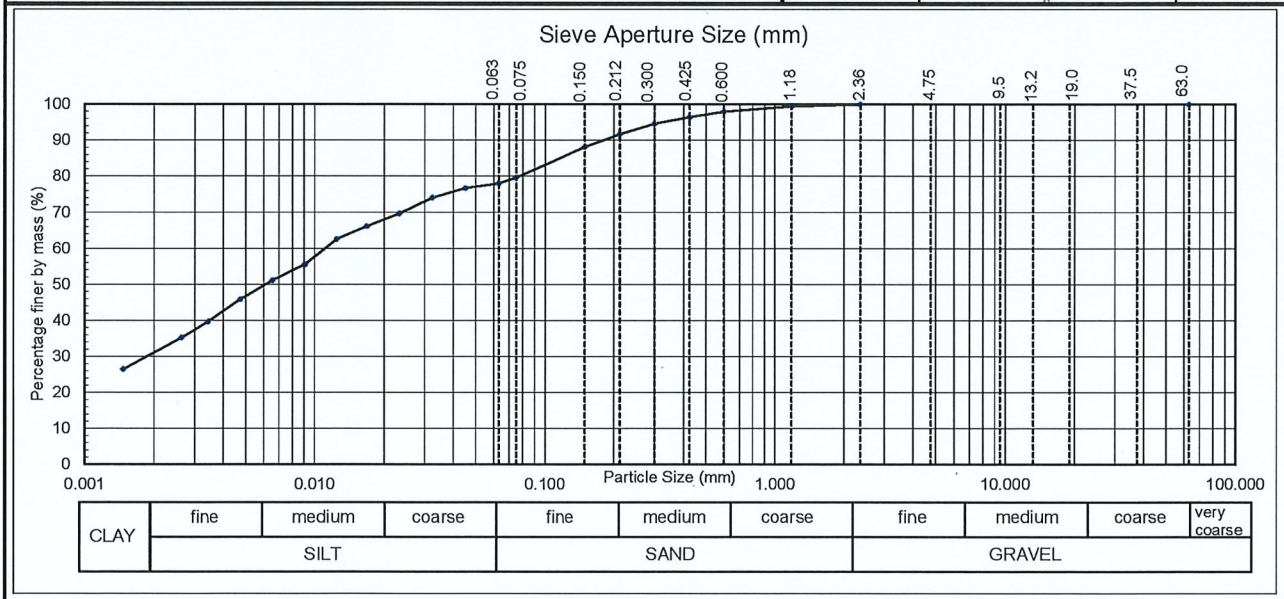
Telephone 03 343 0739
Website www.wsp.com/nz

PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd
Order No:	-
Contractor :	-
Borehole No:	BH2B_1124 Depth: 3.00-3.45 metres
Sampled by :	NC Site Team
Date received :	10/10/25
Sampling method :	SPT
Sample condition :	Natural; as excavated
Sample description :	Refer to BH2B_1124 log report
Solid Particle Density (t/m^3):	2.68 Assumed
Water Content (as received):	35.5 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/125-Hydro
Client Ref:	-

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	--	0.300	95	0.0452	77	0.0066	51
37.5	--	2.36	100	0.212	92	0.0324	74	0.0047	46
19.0	--	1.18	99	0.150	88	0.0233	70	0.0034	40
13.2	--	0.600	98	0.075	80	0.0168	66	0.0026	35
9.5	--	0.425	96	0.063	78	0.0125	63	0.0015	26
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0091	56		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

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Date Tested: 16/10/25

Date Reported: 23/10/25

Approved Signatory

Designation : *Senior Civil Engineering Technician*

Date : 23/10/25

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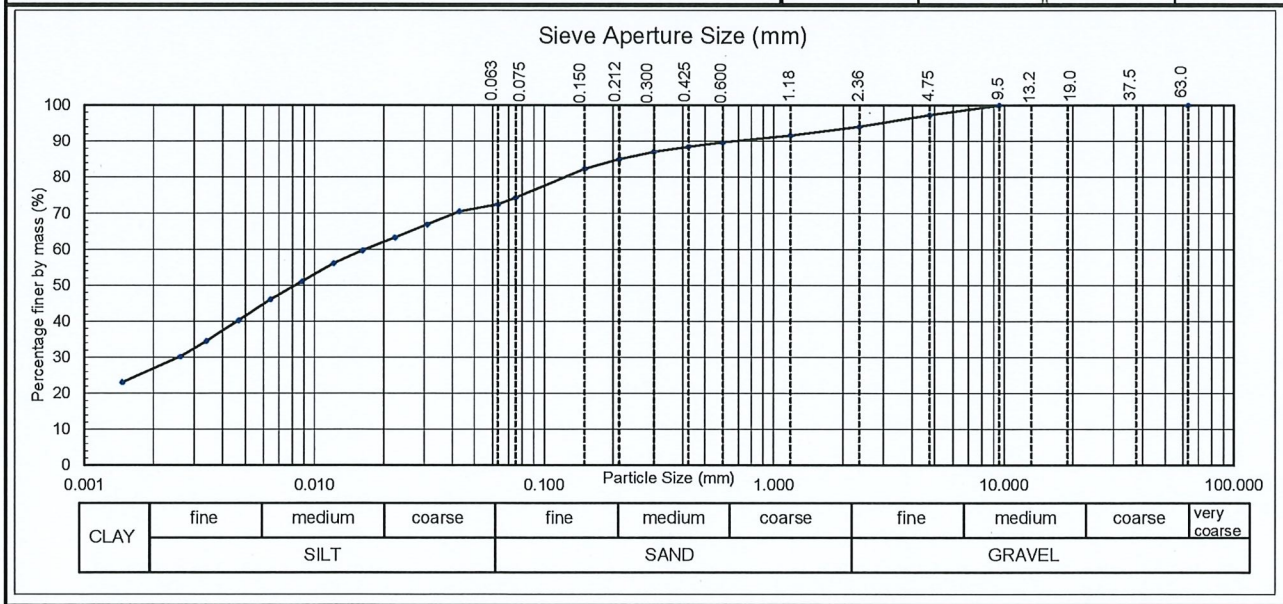
Telephone 03 343 0739
Website www.wsp.com/nz

PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2B - Bryderwyn to Marsden Point
Client :	NZTA C/- Aurecon & WSP NZ Ltd
Order No:	-
Contractor :	-
Borehole No:	BH2B_1125 Depth: 6.00-6.45 metres
Sampled by :	WSP
Date received :	03/10/25
Sampling method :	SPT
Sample condition :	As received
Sample description :	Refer to BH2B_1125 log report
Solid Particle Density (t/m^3):	2.68 Assumed
Water Content (as received):	41.5 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/123-Hydro
Client Ref:	-

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	97	0.300	87	0.0428	71	0.0064	46
37.5	--	2.36	94	0.212	85	0.0309	67	0.0047	40
19.0	--	1.18	92	0.150	82	0.0224	63	0.0034	35
13.2	--	0.600	90	0.075	74	0.0162	60	0.0026	30
9.5	100	0.425	88	0.063	72	0.0121	56	0.0015	23
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0088	51		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

This report may only be reproduced in full

Date Tested: 21/10/25

Date Reported: 21/10/25

Approved Signatory

Designation : *Senior Civil Engineering Technician*

Date : 21/10/25

ACCREDITED IANZ TESTING LABORATORY

Test results indicated as not accredited are outside the scope of the laboratory's accreditation

WSP
Christchurch (Hayton Rd)
Quality Management Systems Certified to ISO 9001

52C Hayton Rd
PO Box 1482, Christchurch Mail Centre,
8140, Christchurch, New Zealand

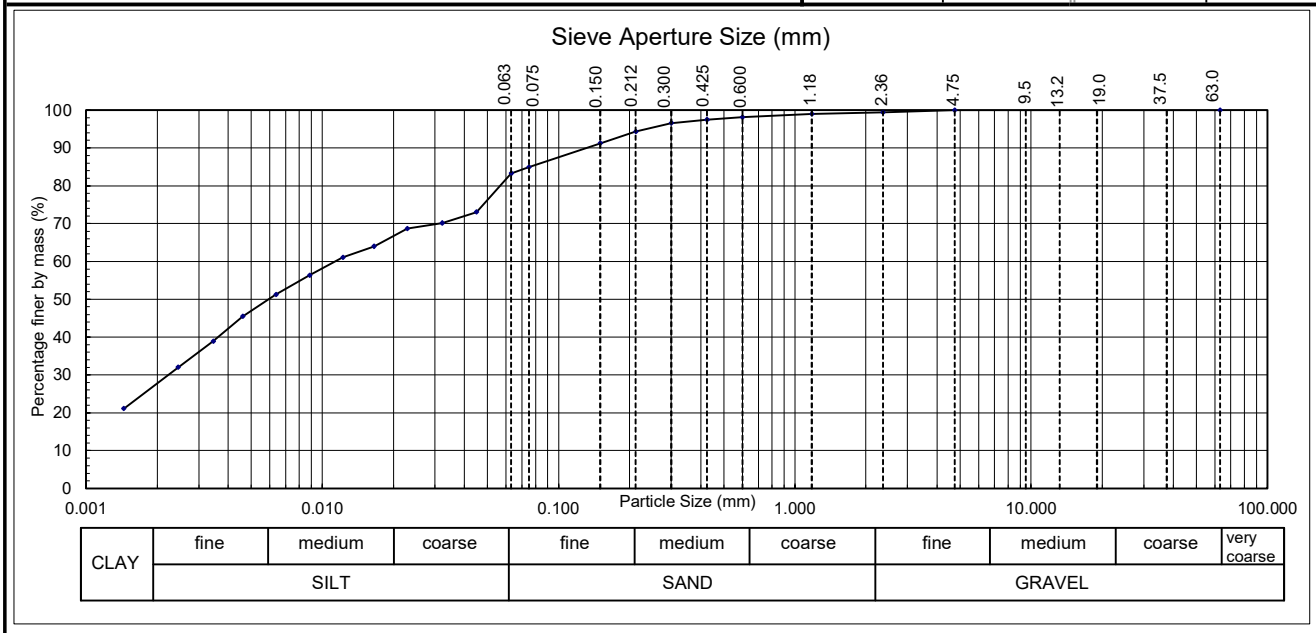
Telephone 03 343 0739
Website www.wsp.com/nz

PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd
Order No:	-
Contractor :	-
Borehole No:	BH2B_1127 Depth: 3.00-3.45 metres
Sampled by :	NC Site Team
Date received :	17/10/25
Sampling method :	SPT
Sample condition :	Natural; as excavated
Sample description :	Clayey SILT with some sand and traces of gravel
Solid Particle Density (t/m^3):	2.72 Assumed
Water Content (as received):	38.0 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/138-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	100	0.300	97	0.0448	73	0.0064	51
37.5	--	2.36	99	0.212	94	0.0322	70	0.0046	45
19.0	--	1.18	99	0.150	91	0.0229	69	0.0035	39
13.2	--	0.600	98	0.075	85	0.0165	64	0.0025	32
9.5	--	0.425	97	0.063	83	0.0122	61	0.0014	21
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0088	56		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 9.1 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 21-22/10/25

Date Reported: 30/10/25

Approved Signatory Thirushen Pillay
Designation : *Senior Civil Engineering Technician*
Date : 04/11/25

ACCREDITED IANZ TESTING LABORATORY

Test results indicated as not accredited are outside the scope of the laboratory's accreditation

WSP
Auckland (Ride Way)
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7A Ride Way, Albany
Private Bag 101982, NS Mail Centre, North Shore City, 0745, Auckland, New Zealand

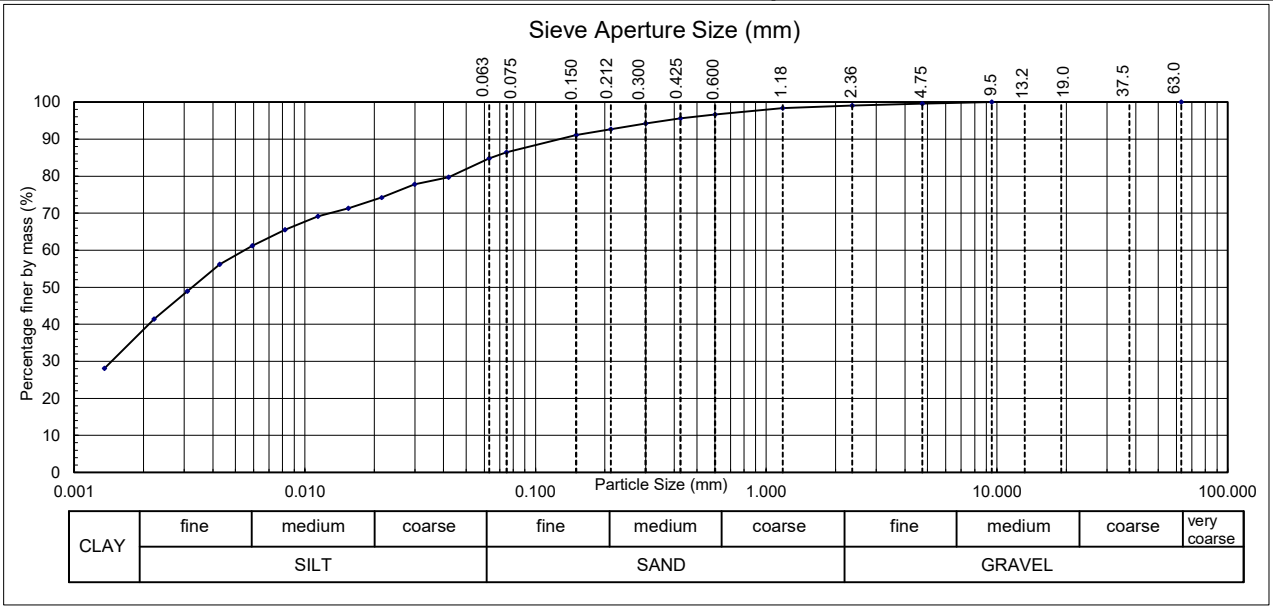
Telephone 09 415 4660
Website www.wsp.com/nz

PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Alternative to Brynderwyn Hills Section
Client :	NZTA C/- Aurecon & WSP NZ Ltd
Order No:	-
Contractor :	-
Borehole No:	BH2B_1128 Depth: 3.50-3.95 metres
Sampled by :	NC Site Team
Date received :	21/11/25
Sampling method :	SPT
Sample condition :	As received
Sample description :	Clayey SILT with some sand and traces of gravel
Solid Particle Density (t/m^3):	2.79 Tested
Water Content (as received):	39.5 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/192-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	100	0.300	94	0.0419	80	0.0059	61
37.5	--	2.36	99	0.212	93	0.0300	78	0.0043	56
19.0	--	1.18	98	0.150	91	0.0216	74	0.0031	49
13.2	--	0.600	97	0.075	86	0.0155	71	0.0022	41
9.5	100	0.425	96	0.063	85	0.0114	69	0.0014	28
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0082	66		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 8.9 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 26-28/11/25

Date Reported: 01/12/25

Approved Signatory Thirushen Pillay
Designation : *Senior Civil Engineering Technician*
Date : 18/12/25

ACCREDITED IANZ TESTING LABORATORY

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Auckland (Ride Way)
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7A Ride Way, Albany
Private Bag 101982, NS Mail Centre, North Shore City, 0745, Auckland, New Zealand

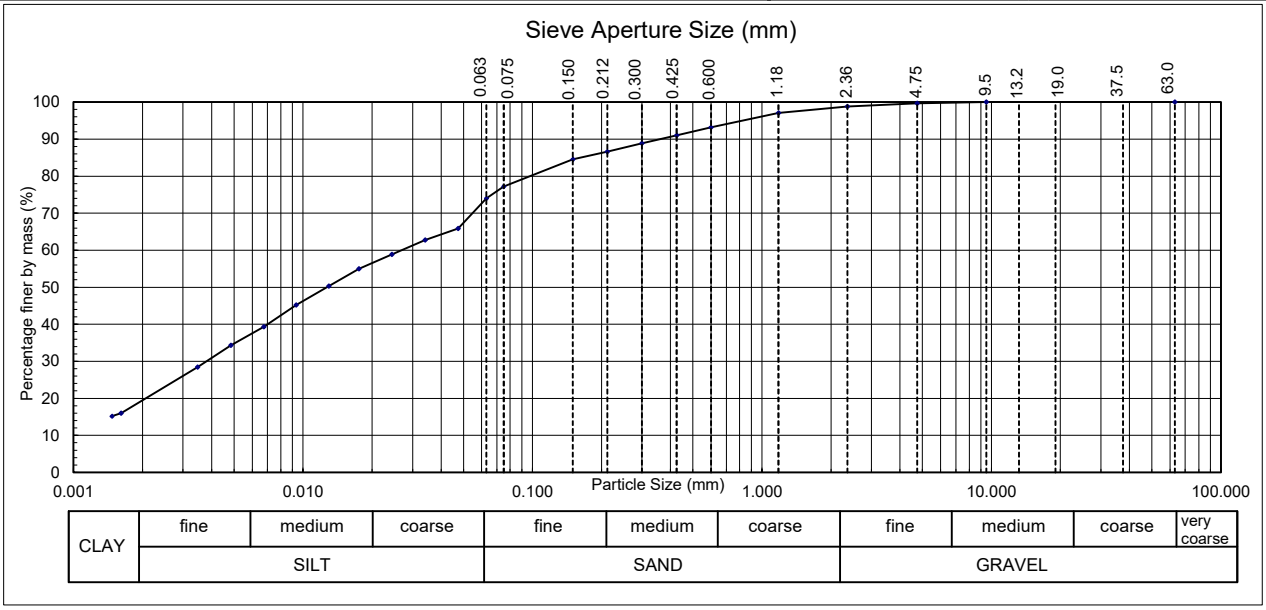
Telephone 09 415 4660
Website www.wsp.com/nz

PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Alternative to Brynderwyn Hills Section
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Borehole No:	BH2B_1128 Depth: 12.00-12.45 metres
Sampled by :	NC Site Team
Date received :	21/11/25 Specific Depth: 12.00-12.45m
Sampling method :	SPT
Sample condition :	As received
Sample description :	Sandy SILT with some clay and traces of gravel
Solid Particle Density (t/m^3):	2.70 Assumed
Water Content (as received):	41.1 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/195-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	100	0.300	89	0.0475	66	0.0067	39
37.5	--	2.36	99	0.212	87	0.0340	63	0.0049	34
19.0	--	1.18	97	0.150	85	0.0244	59	0.0035	28
13.2	--	0.600	93	0.075	77	0.0175	55	0.0016	16
9.5	100	0.425	91	0.063	74	0.0129	50	0.0015	15
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0094	45		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 9.0 (Electrometric Method) **All information supplied by Client**

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 24-28/11/25

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Date Reported: 28/11/2025

Approved Signatory Thirushen Pillay
Designation : *Senior Civil Engineering Technician*
Date : 18/12/2025

ACCREDITED IANZ TESTING LABORATORY

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Telephone 09 415 4660
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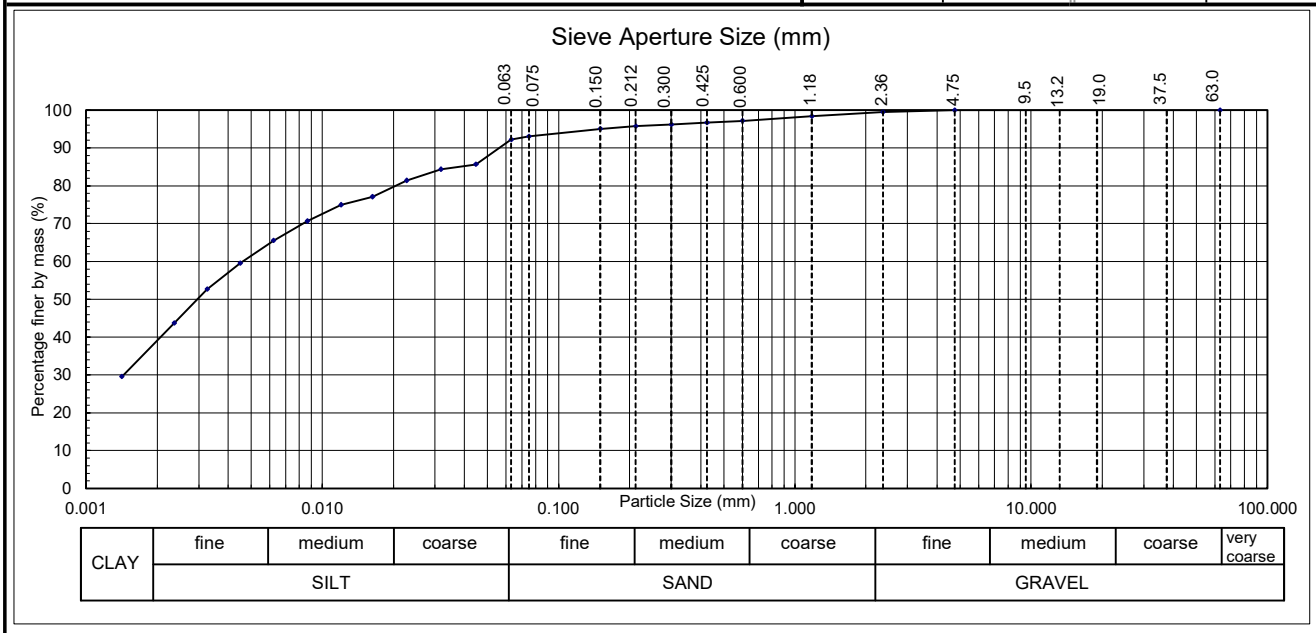
PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd
Order No:	-
Contractor :	-
Borehole No:	BH2B_1129 Depth: 3.00-3.45 metres
Sampled by :	NC Site Team
Date received :	17/10/25
Sampling method :	SPT
Sample condition :	As received
Sample description :	Clayey SILT with minor sand and traces of gravel
Solid Particle Density (t/m^3):	2.74 Assumed
Water Content (as received):	50.3 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/140-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	100	0.300	96	0.0447	86	0.0062	66
37.5	--	2.36	99	0.212	96	0.0318	84	0.0045	60
19.0	--	1.18	98	0.150	95	0.0227	81	0.0033	53
13.2	--	0.600	97	0.075	93	0.0163	77	0.0024	44
9.5	--	0.425	97	0.063	92	0.0120	75	0.0014	30
Note: "--" denotes sieve not used and/or hydrometer analysis not tested						0.0086	71		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 9.5 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 21-22/10/25

Date Reported: 30/10/25

Approved Signatory Thirushen Pillay
Designation : *Senior Civil Engineering Technician*
Date : 04/11/25

ACCREDITED IANZ TESTING LABORATORY

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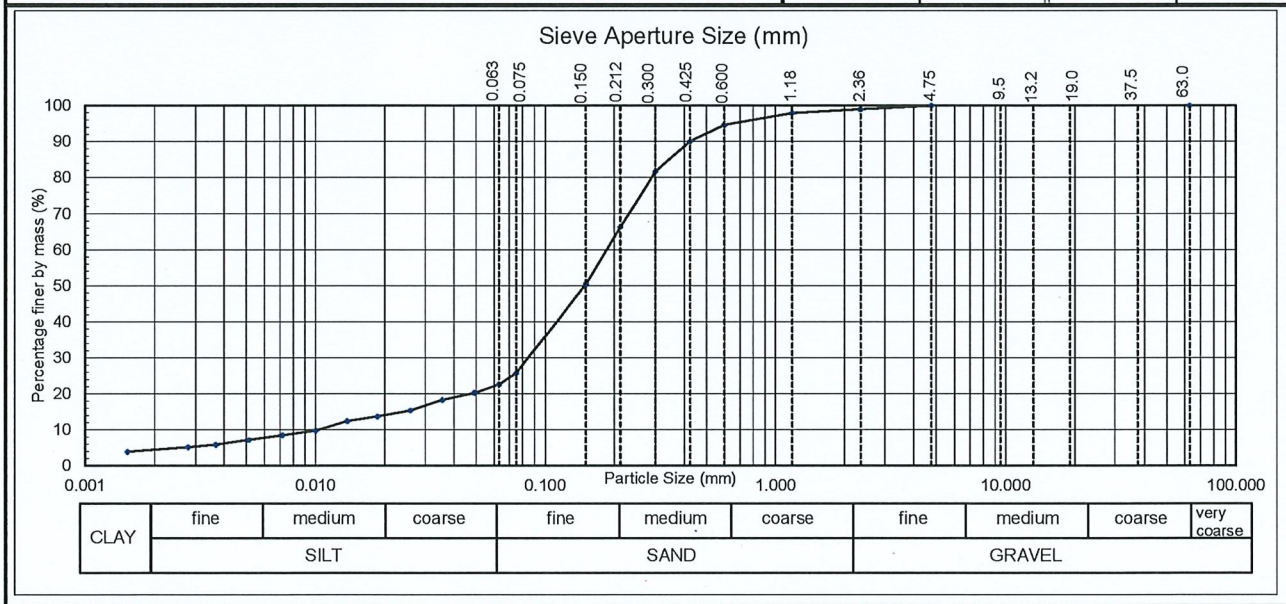
PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2B - Bryderwyn to Marsden Point
Client :	NZTA C/- Aurecon & WSP NZ Ltd
Order No:	-
Contractor :	-
Borehole No:	BH2B_1130 Depth: 9.00-9.45 metres
Sampled by :	WSP
Date received :	26/09/25
Sampling method :	SPT
Sample condition :	As received
Sample description :	Refer to BH2B_1130 log report
Solid Particle Density (t/m^3):	2.74 Tested
Water Content (as received):	31.5 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/108-Hydro
Client Ref:	-

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	100	0.300	82	0.0492	20	0.0072	8
37.5	--	2.36	99	0.212	66	0.0356	18	0.0051	7
19.0	--	1.18	98	0.150	50	0.0259	15	0.0037	6
13.2	--	0.600	95	0.075	26	0.0186	14	0.0028	5
9.5	--	0.425	90	0.063	23	0.0138	12	0.0015	4
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0100	10		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

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Date Tested: 16/10/25

Date Reported: 22/10/25

Approved Signatory

Designation : *Senior Civil Engineering Technician*

Date : 22/10/25

ACCREDITED IANZ TESTING LABORATORY

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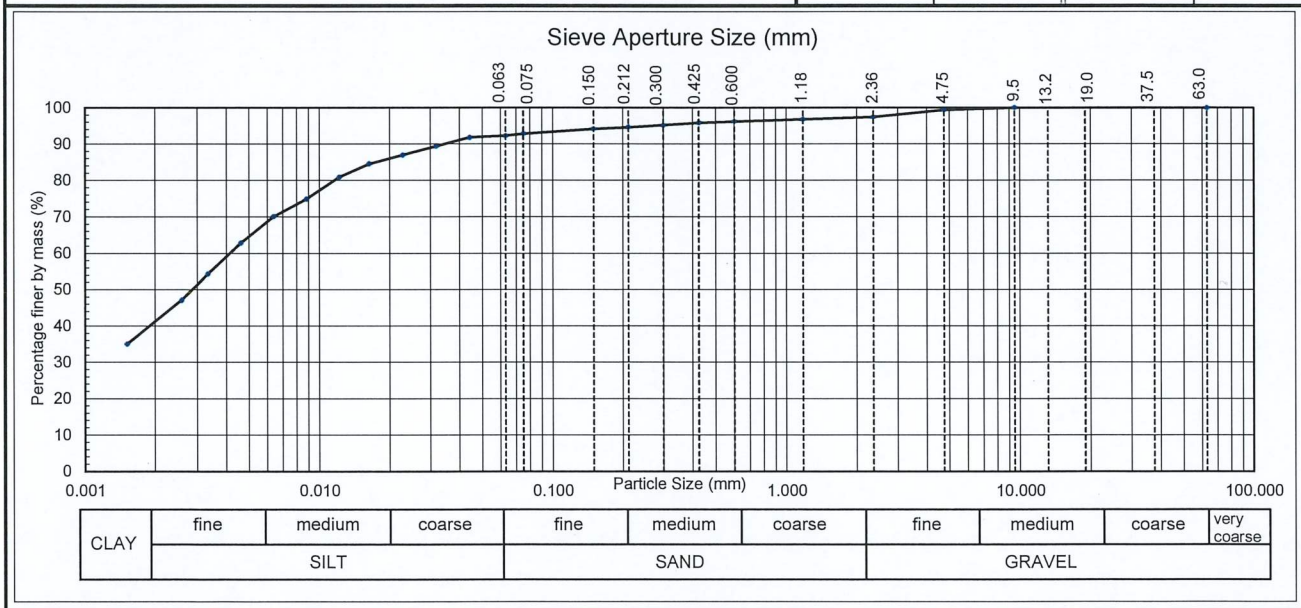
Telephone 03 343 0739
Website www.wsp.com/nz

PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation For Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon Ltd & WSP NZ Ltd
Client / sample ref :	--
Contractor :	N/A
Borehole no :	BH2B_1131 Depth: 2.00 - 2.45 metres
Sampled by :	NC Site Team
Date received :	23 September 2025
Sampling method :	SPT
Sample condition :	As Received
Sample description :	Clayey SILT with minor sand & a trace of gravel
Solid particle density :	2.65 t/m^3 (assumed)
Water content :	54.0 % (as received)

Project No:	1-C2466.16
Lab Ref No:	WL4708/47-HYD
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	99	0.300	95	0.0443	92	0.0064	70
37.5	--	2.36	97	0.212	95	0.0318	89	0.0046	63
19.0	--	1.18	97	0.150	94	0.0228	87	0.0033	54
13.2	--	0.600	96	0.075	93	0.0163	85	0.0026	47
9.5	100	0.425	96	0.063	92	0.0122	81	0.0015	35
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0088	75		



Test Method	Notes
Particle Size Analysis : NZS 4402 : 1986, Test 2.8.4 (Washed Grading & Hydrometer Method)	pH suspension : 9.0 (pH Indicator stick) Sample description in accordance with NZ Geotechnical Society Inc, notes. All information supplied by client.

Date Tested: 9 October 2025

Date Reported: 14 October 2025

Approved Signatory

Designation : *Intermediate Laboratory Technician*

Date : 14 October 2025

ACCREDITED IANZ TESTING LABORATORY

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

WSP
Tauranga (Chadwick Rd)
Quality Management Systems Certified to ISO 9001

278 Chadwick Rd
PO Box 9057, 3142, Tauranga, New Zealand

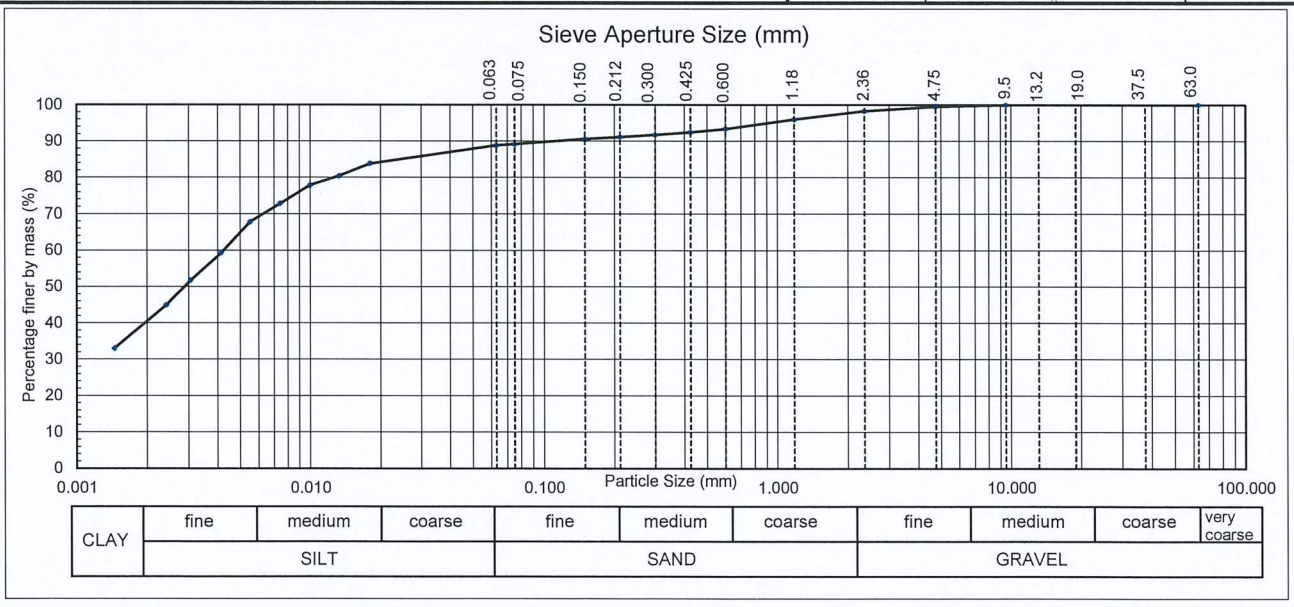
Telephone 07 578 5425
Website www.wsp.com/nz

PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation For Northland Corridor
Location :	Section 2 To Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon Ltd & WSP NZ Ltd
Client / sample ref :	--
Contractor :	N/A
Borehole no :	BH2B_1132 Depth: 3.00 - 3.45 metres
Sampled by :	NC Site Team
Date received :	23 September 2025
Sampling method :	SPT
Sample condition :	As Received
Sample description :	Clayey SILT with minor sand & a trace of gravel
Solid particle density :	2.65 t/m^3 (assumed)
Water content :	25.4 % (as received)

Project No:	1-C2466.16
Lab Ref No:	WL4708/49-HYD
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	100	0.300	92	0.0180	84	0.0031	52
37.5	--	2.36	98	0.212	91	0.0133	80	0.0024	45
19.0	--	1.18	96	0.150	91	0.0100	78	0.0014	33
13.2	--	0.600	93	0.075	89	0.0074	73	--	--
9.5	100	0.425	93	0.063	89	0.0055	68	--	--
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0041	59		



Test Method	Notes
Particle Size Analysis : NZS 4402 : 1986, Test 2.8.4 (Washed Grading & Hydrometer Method)	pH suspension : 9.0 (pH Indicator stick) Sample description in accordance with NZ Geotechnical Society Inc, notes. All information supplied by client.

Date Tested: 9 October 2025

Date Reported: 14 October 2025

Approved Signatory

Designation : *Intermediate Laboratory Technician*

Date : 14 October 2025

ACCREDITED IANZ TESTING LABORATORY

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Tauranga (Chadwick Rd)
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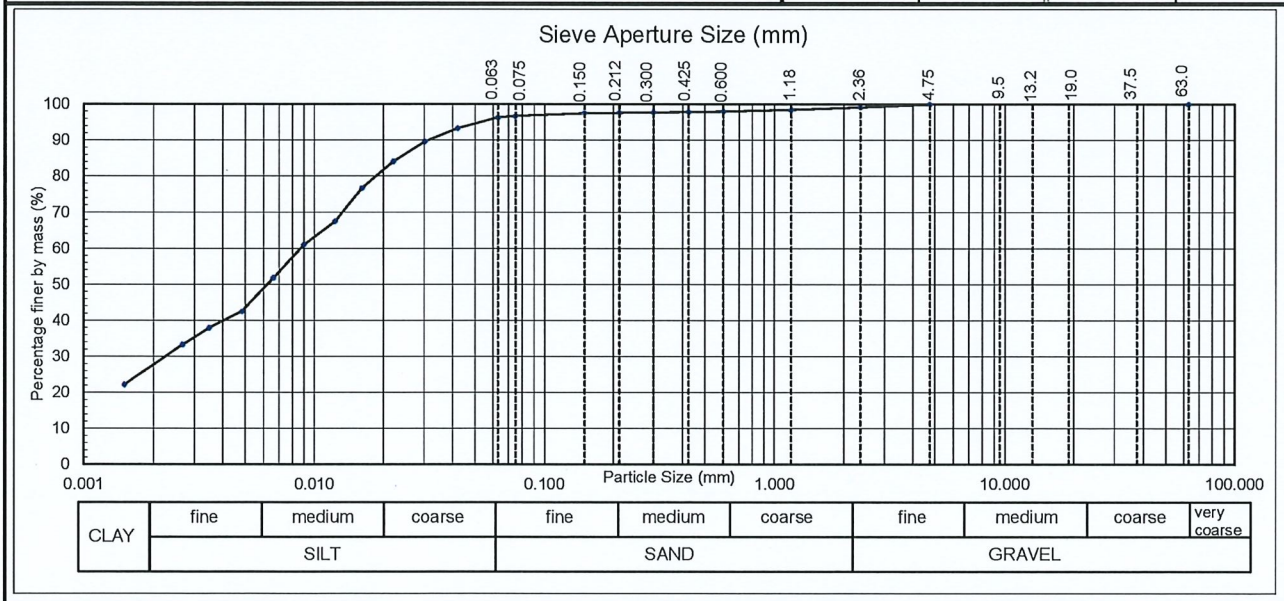
PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd
Order No:	-
Contractor :	-
Borehole No:	BH2B_1133 Depth: 3.00-3.45 metres
Sampled by :	NC Site Team
Date received :	10/10/25
Sampling method :	Pushtube
Sample condition :	Natural; as excavated
Sample description :	Refer to BH2B_1133 log report
Solid Particle Density (t/m^3):	2.68 Assumed
Water Content (as received):	17.9 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/64-Hydro
Client Ref:	-

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	100	0.300	98	0.0422	93	0.0066	52
37.5	--	2.36	99	0.212	98	0.0303	90	0.0048	43
19.0	--	1.18	98	0.150	98	0.0221	84	0.0035	38
13.2	--	0.600	98	0.075	97	0.0162	77	0.0027	33
9.5	--	0.425	98	0.063	96	0.0123	67	0.0015	22
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0090	61		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 20/10/25

Date Reported: 23/10/25

Approved Signatory

Designation : *Senior Civil Engineering Technician*

Date : 23/10/25

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Christchurch (Hayton Rd)
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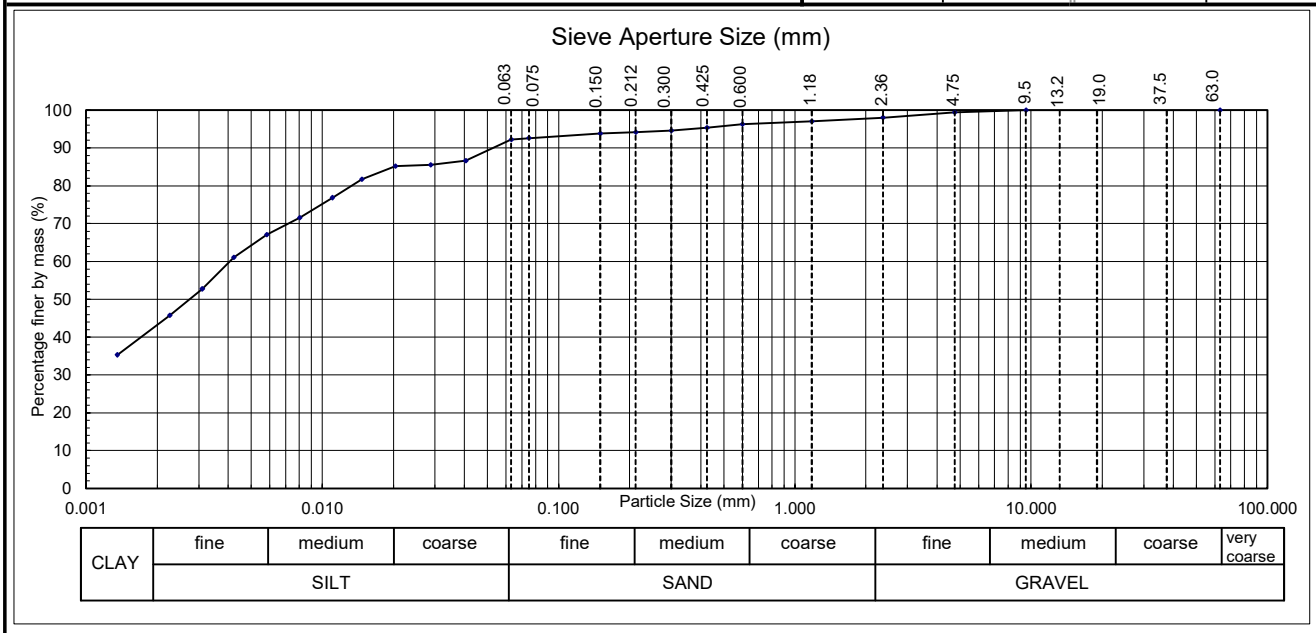
Telephone 03 343 0739
Website www.wsp.com/nz

PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd
Order No:	-
Contractor :	-
Borehole No:	BH2B_1134 Depth: 1.50-1.95 metres
Sampled by :	NC Site Team
Date received :	17/10/25
Sampling method :	SPT
Sample condition :	As received
Sample description :	Clayey SILT with minor sand and traces of gravel
Solid Particle Density (t/m^3):	2.76 Tested
Water Content (as received):	26.2 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/144-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	99	0.300	95	0.0404	87	0.0058	67
37.5	--	2.36	98	0.212	94	0.0288	86	0.0042	61
19.0	--	1.18	97	0.150	94	0.0204	85	0.0031	53
13.2	--	0.600	96	0.075	93	0.0147	82	0.0023	46
9.5	100	0.425	95	0.063	92	0.0110	77	0.0014	35
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0080	72		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 9.3 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 05-06/11/25 This report may only be reproduced in full

Date Reported: 12/11/25

Approved Signatory Thirushen Pillay
Designation : *Senior Civil Engineering Technician*
Date : 17/11/25

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7A Ride Way, Albany
Private Bag 101982, NS Mail Centre, North Shore City, 0745, Auckland, New Zealand

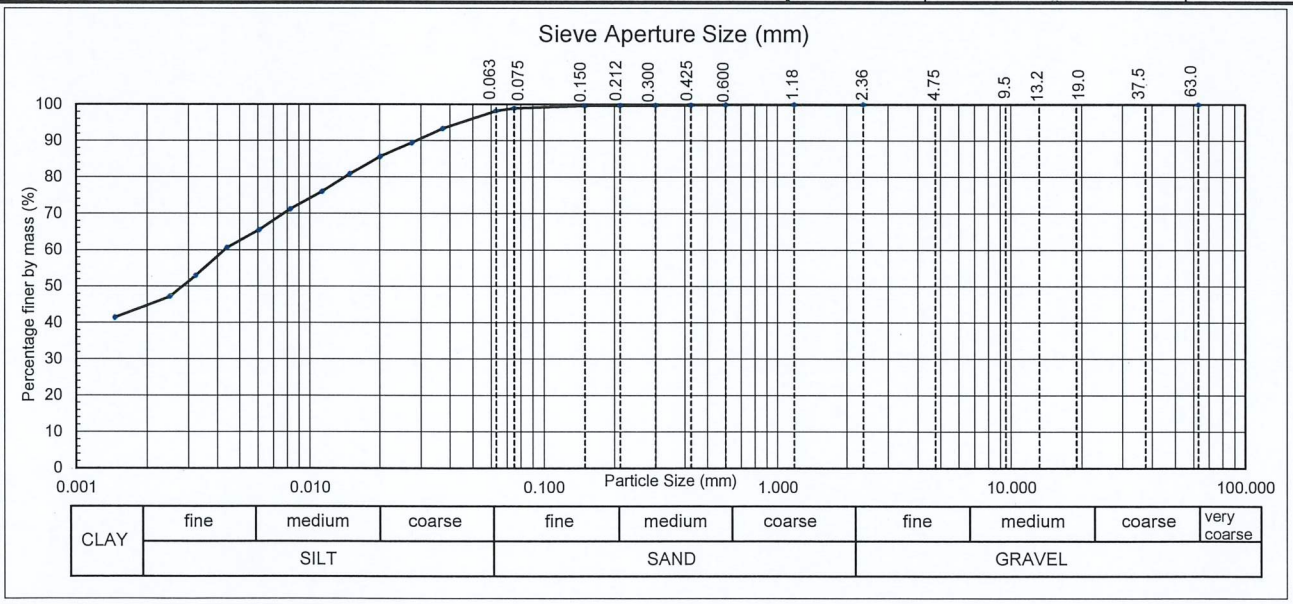
Telephone 09 415 4660
Website www.wsp.com/nz

PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation For Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon Ltd & WSP NZ Ltd
Client / sample ref :	--
Contractor :	N/A
Borehole no :	BH2B_1135 Depth: 2.00 - 2.45 metres
Sampled by :	NC Site Team
Date received :	23 September 2025
Sampling method :	SPT
Sample condition :	As Received
Sample description :	Clayey SILT with a trace of sand
Solid particle density :	2.65 t/m^3 (assumed)
Water content :	24.6 % (as received)

Project No:	1-C2466.16
Lab Ref No:	WL4708/73-HYD
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	--	0.300	100	0.0372	93	0.0061	65
37.5	--	2.36	100	0.212	100	0.0274	90	0.0044	61
19.0	--	1.18	100	0.150	100	0.0201	86	0.0032	53
13.2	--	0.600	100	0.075	99	0.0149	81	0.0025	47
9.5	--	0.425	100	0.063	98	0.0113	76	0.0015	41
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0082	71		



Test Method	Notes
Particle Size Analysis : NZS 4402 : 1986, Test 2.8.4 (Washed Grading & Hydrometer Method)	pH suspension : 9.0 (pH Indicator stick) Sample description in accordance with NZ Geotechnical Society Inc, notes. All information supplied by client.

Date Tested: 15 October 2025

Date Reported: 18 October 2025

Approved Signatory

Designation : *Intermediate Laboratory Technician*

Date : 18 October 2025

ACCREDITED IANZ TESTING LABORATORY

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

WSP
Tauranga (Chadwick Rd)
Quality Management Systems Certified to ISO 9001

278 Chadwick Rd
PO Box 9057, 3142, Tauranga, New Zealand

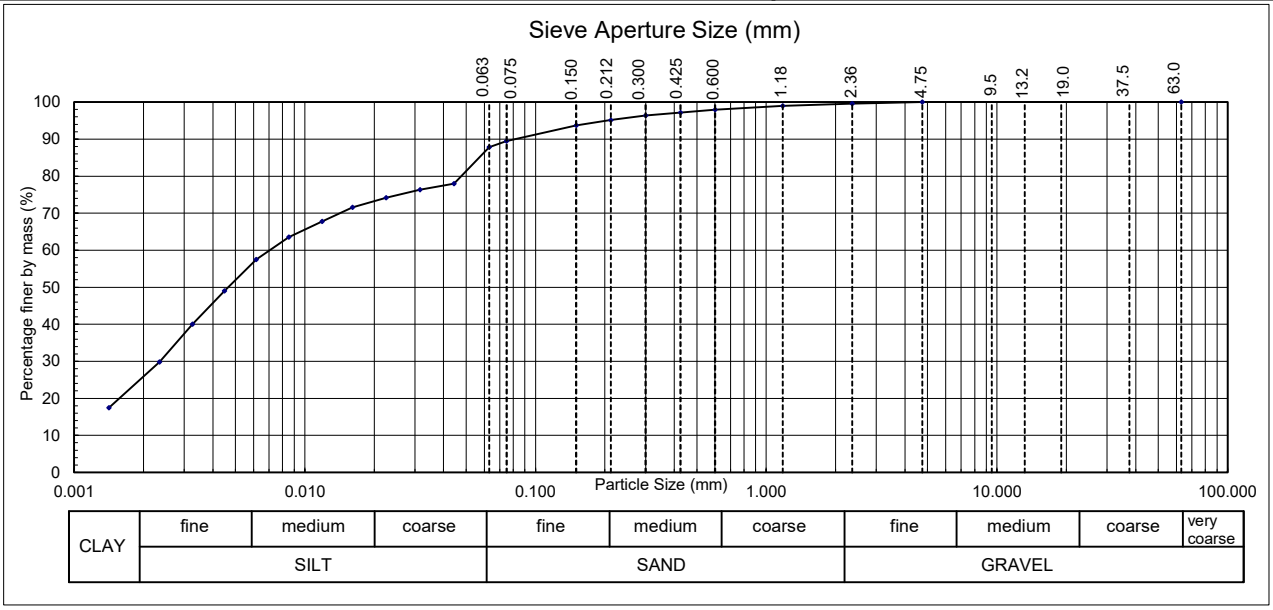
Telephone 07 578 5425
Website www.wsp.com/nz

PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Alternative to Brynderwyn Hills Section
Client :	NZTA C/- Aurecon & WSP NZ Ltd
Order No:	-
Contractor :	-
Borehole No:	BH2B_1136 Depth: 4.50-4.95m metres
Sampled by :	NC Site Team
Date received :	21/11/25
Sampling method :	SPT
Sample condition :	As received
Sample description :	Clayey SILT with some sand
Solid Particle Density (t/m^3):	2.78 Tested
Water Content (as received):	56.1 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/196-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	100	0.300	96	0.0444	78	0.0062	58
37.5	--	2.36	100	0.212	95	0.0316	76	0.0045	49
19.0	--	1.18	99	0.150	94	0.0225	74	0.0033	40
13.2	--	0.600	98	0.075	89	0.0161	72	0.0023	30
9.5	--	0.425	97	0.063	88	0.0119	68	0.0014	17
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0085	64		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 8.9 (Electrometric Method) **All information supplied by Client**

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 27-28/11/25 **This report may only be reproduced in full**

Date Reported: 01/12/25

Approved Signatory Thirushen Pillay
Designation : *Senior Civil Engineering Technician*
Date : 18/12/25

ACCREDITED IANZ TESTING LABORATORY

Test results indicated as not accredited are outside the scope of the laboratory's accreditation

WSP
Auckland (Ride Way)
Quality Management Systems Certified to ISO 9001

7A Ride Way, Albany
Private Bag 101982, NS Mail Centre, North Shore City, 0745, Auckland, New Zealand

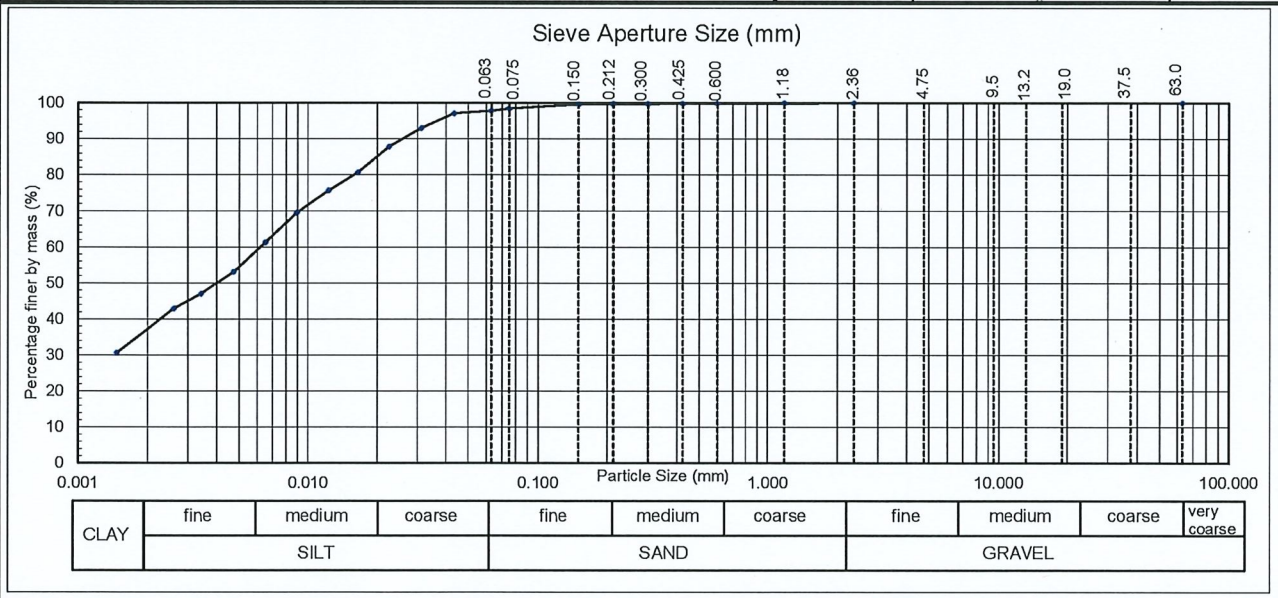
Telephone 09 415 4660
Website www.wsp.com/nz

PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd
Order No:	-
Contractor :	-
Borehole No:	BH2B_1137 Depth: 5.00-5.45 metres
Sampled by :	NC Site Team
Date received :	10/10/25
Sampling method :	Pushtube
Sample condition :	Natural; as excavated
Sample description :	Refer to BH2B_1137 log report
Solid Particle Density (t/m^3):	2.68 Assumed
Water Content (as received):	52.3 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/133-Hydro
Client Ref:	-

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	--	0.300	100	0.0435	97	0.0065	61
37.5	--	2.36	100	0.212	100	0.0312	93	0.0047	53
19.0	--	1.18	100	0.150	100	0.0226	88	0.0034	47
13.2	--	0.600	100	0.075	98	0.0165	81	0.0026	43
9.5	--	0.425	100	0.063	98	0.0123	76	0.0015	31
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0089	70		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 17/10/25

This report may only be reproduced in full

Date Reported: 23/10/25

Approved Signatory

Designation : *Senior Civil Engineering Technician*

Date : 23/10/25

ACCREDITED IANZ TESTING LABORATORY

Test results indicated as not accredited are outside the scope of the laboratory's accreditation

WSP
Christchurch (Hayton Rd)
Quality Management Systems Certified to ISO 9001

52C Hayton Rd
PO Box 1482, Christchurch Mail Centre,
8140, Christchurch, New Zealand

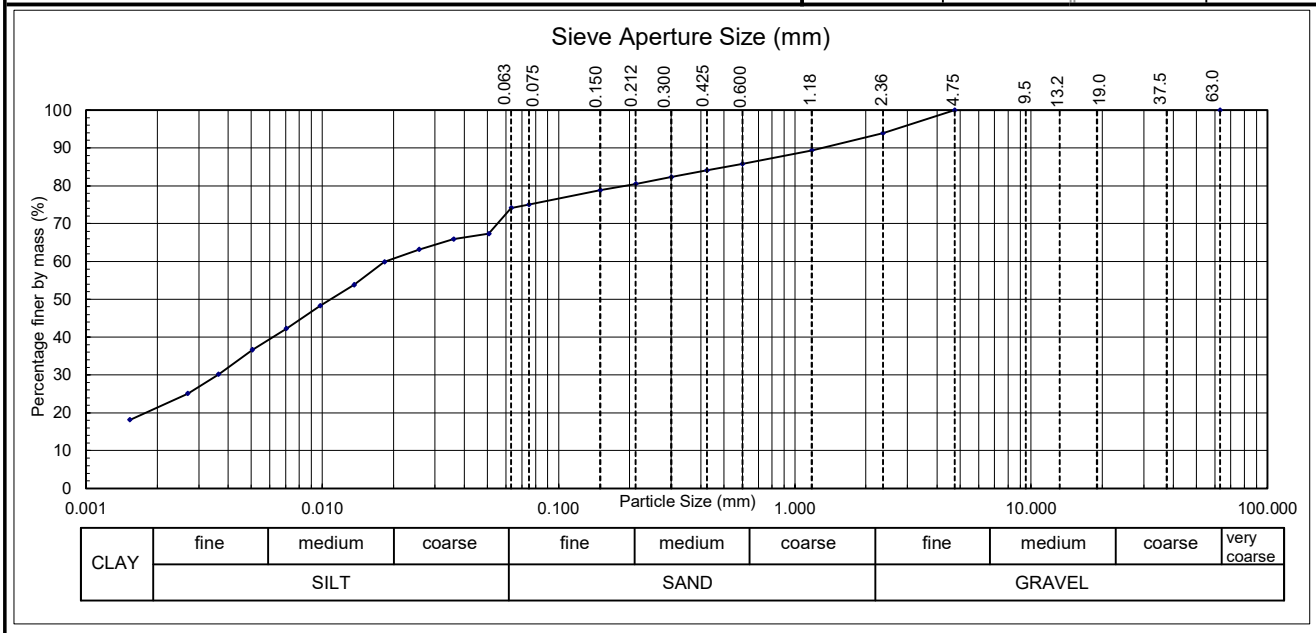
Telephone 03 343 0739
Website www.wsp.com/nz

PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Borehole No:	BH2B_1139 Depth: 3.00-3.45 metres
Sampled by :	NC Site Team
Date received :	24/09/25 Specific Depth: 3.00-3.45m
Sampling method :	SPT
Sample condition :	As received
Sample description :	Clayey SILT with some sand and minor gravel
Solid Particle Density (t/m^3):	2.70 Assumed
Water Content (as received):	63.7 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/110-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	100	0.300	82	0.0506	67	0.0070	42
37.5	--	2.36	94	0.212	81	0.0360	66	0.0051	37
19.0	--	1.18	89	0.150	79	0.0257	63	0.0036	30
13.2	--	0.600	86	0.075	75	0.0183	60	0.0027	25
9.5	--	0.425	84	0.063	74	0.0136	54	0.0015	18
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0098	48		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 8.1 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 01-03/10/25 This report may only be reproduced in full

Date Reported: 12/10/25

Approved Signatory Thirushen Pillay
Designation : *Senior Civil Engineering Technician*
Date : 13/10/2025

ACCREDITED IANZ TESTING LABORATORY

Test results indicated as not accredited are outside the scope of the laboratory's accreditation

WSP
Auckland (Ride Way)
Quality Management Systems Certified to ISO 9001

7A Ride Way, Albany
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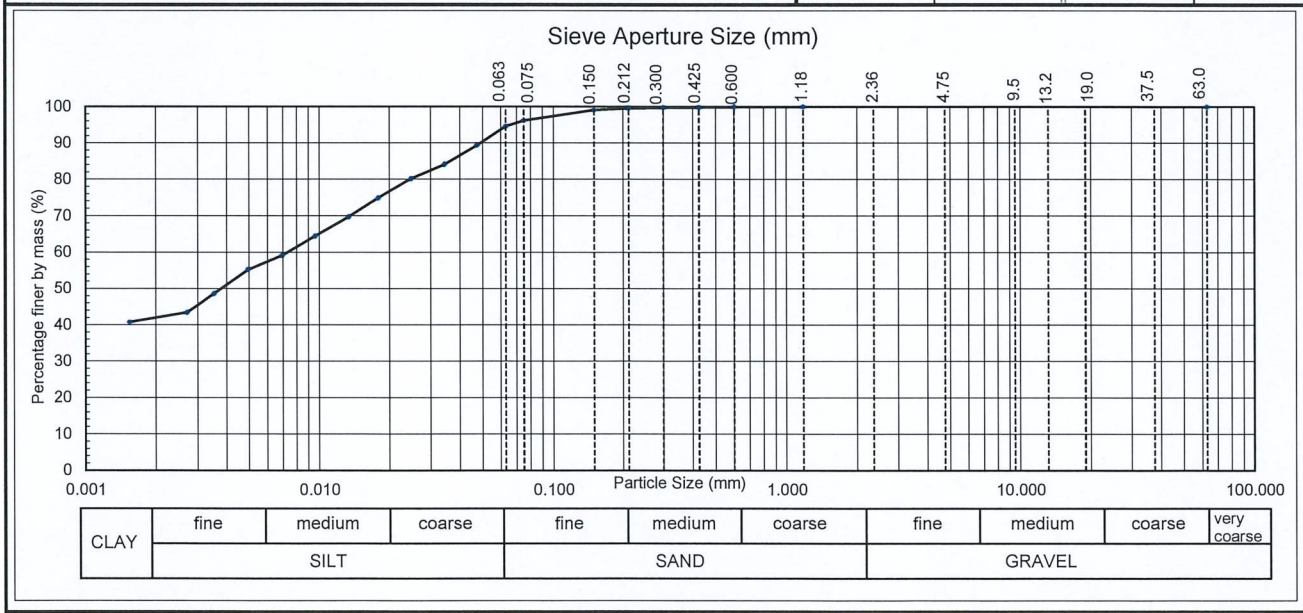
Telephone 09 415 4660
Website www.wsp.com/nz

PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation For Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon Ltd & WSP NZ Ltd
Client / sample ref :	--
Contractor :	N/A
Borehole no :	BH2B_1140 Depth: 3.50 - 3.95 metres
Sampled by :	NC Site Team
Date received :	23 September 2025
Sampling method :	SPT
Sample condition :	As Received
Sample description :	Clayey SILT with minor sand
Solid particle density :	2.65 t/m^3 (assumed)
Water content :	36.4 % (as received)

Project No:	1-C2466.16
Lab Ref No:	WL4708/76-HYD
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	--	0.300	100	0.0474	89	0.0069	59
37.5	--	2.36	--	0.212	100	0.0344	84	0.0050	55
19.0	--	1.18	100	0.150	99	0.0247	80	0.0035	49
13.2	--	0.600	100	0.075	96	0.0179	75	0.0027	43
9.5	--	0.425	100	0.063	95	0.0134	70	0.0015	41
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0096	64		



Test Method	Notes
Particle Size Analysis : NZS 4402 : 1986, Test 2.8.4 (Washed Grading & Hydrometer Method)	pH suspension : 9.0 (pH Indicator stick) Sample description in accordance with NZ Geotechnical Society Inc, notes. All information supplied by client.

Date Tested: 15 October 2025

Date Reported: 18 October 2025

Approved Signatory

Designation : *Intermediate Laboratory Technician*

Date : 18 October 2025

ACCREDITED IANZ TESTING LABORATORY

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

WSP
Tauranga (Chadwick Rd)
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278 Chadwick Rd
PO Box 9057, 3142, Tauranga, New Zealand

Telephone 07 578 5425
Website www.wsp.com/nz

PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Borehole No:	BH2B_1143 Depth: 3.50-3.95 metres
Sampled by :	NC Site Team
Date received :	05/11/25 Specific Depth: 3.50-3.95m
Sampling method :	SPT
Sample condition :	As received
Sample description :	Silty CLAY
Solid Particle Density (t/m^3):	2.75 Assumed
Water Content (as received):	61.9 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/171-Hydro
Client Ref:	1-C2466.16

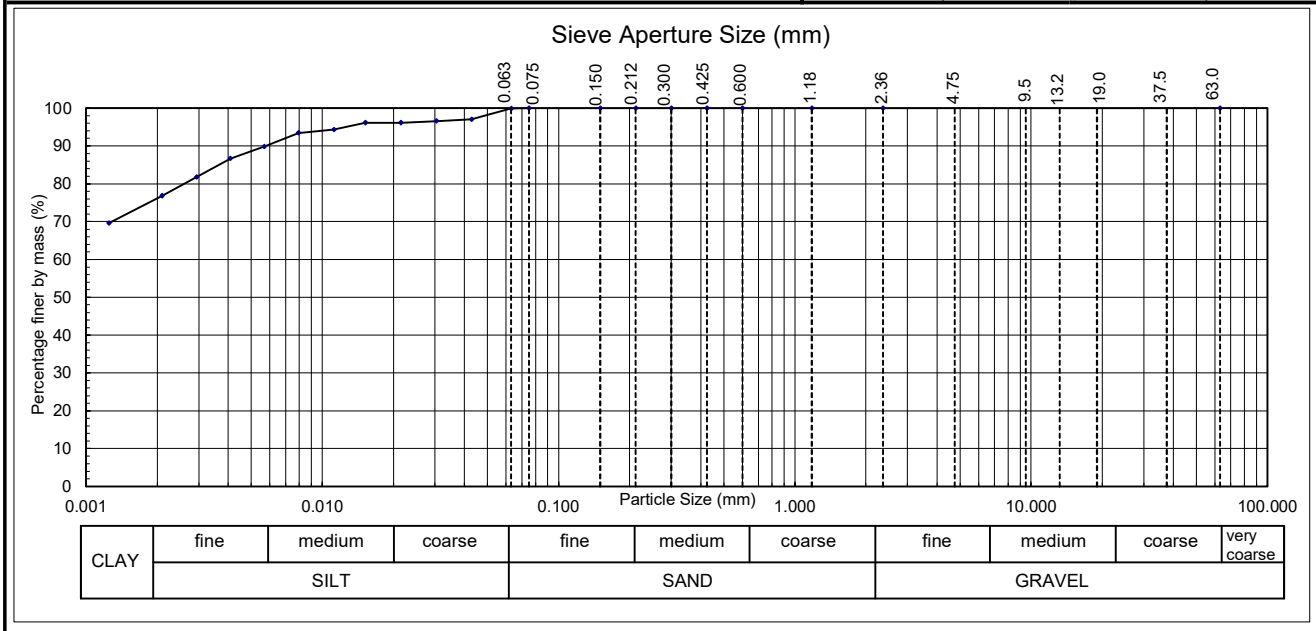
Sieve Analysis

Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)
63.0	--	4.75	--	0.300	100
37.5	--	2.36	100	0.212	100
19.0	--	1.18	100	0.150	100
13.2	--	0.600	100	0.075	100
9.5	--	0.425	100	0.063	100

Note: "--" denotes sieve not used and/or hydrometer analysis not tested

Hydrometer Analysis

Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
0.0429	97	0.0057	90
0.0304	97	0.0041	87
0.0215	96	0.0029	82
0.0152	96	0.0021	77
0.0112	94	0.0013	70
0.0079	93		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 9.1 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

This report may only be reproduced in full

Date Tested: 11-14/11/25

Date Reported: 19/11/25

Approved Signatory Thirushen Pillay

Designation : *Senior Civil Engineering Technician*

Date : 23/11/2025

ACCREDITED IANZ TESTING LABORATORY

Test results indicated as not accredited are outside the scope of the laboratory's accreditation

WSP
Auckland (Ride Way)
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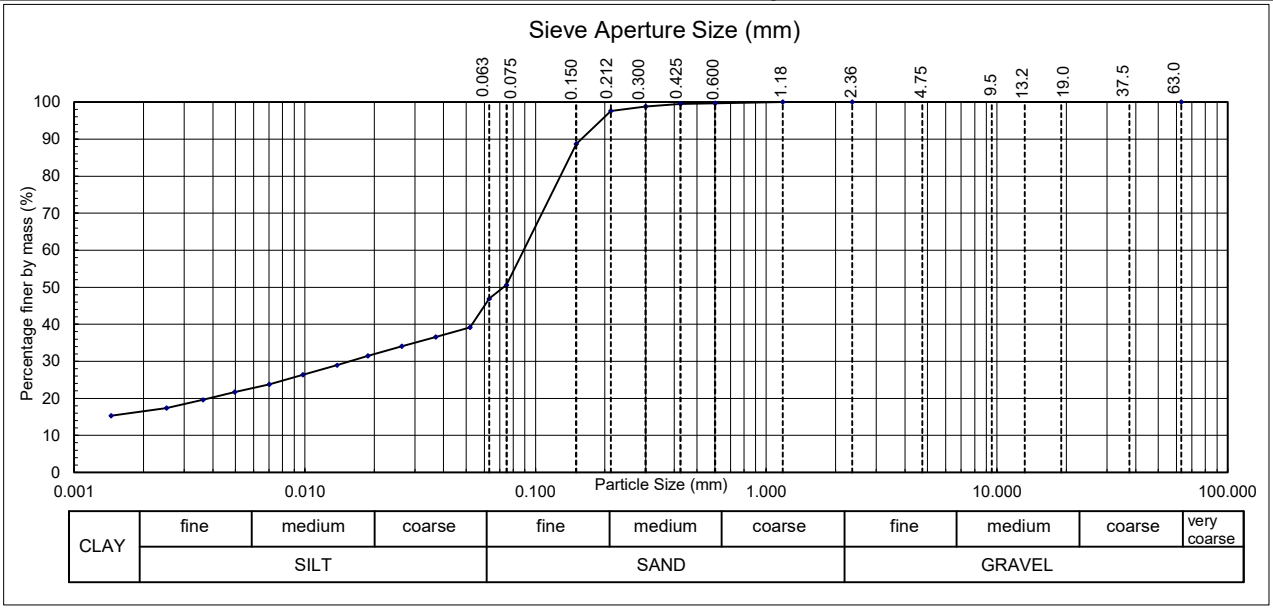
PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Alternative to Brynderwyn Hills Section
Client :	NZTA C/- Aurecon & WSP NZ Ltd
Order No:	-
Contractor :	-
Borehole No:	BH2B_1143 Depth: 10.50-11.00 metres
Sampled by :	NC Site Team
Date received :	11/05/25
Sampling method :	Pushtube
Sample condition :	As received
Sample description :	Silty SAND with some clay
Solid Particle Density (t/m^3):	2.73 Assumed
Water Content (as received):	49.2 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/174-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	--	0.300	99	0.0519	39	0.0070	24
37.5	--	2.36	100	0.212	98	0.0370	37	0.0050	22
19.0	--	1.18	100	0.150	89	0.0263	34	0.0036	20
13.2	--	0.600	100	0.075	51	0.0188	31	0.0025	17
9.5	--	0.425	99	0.063	47	0.0138	29	0.0014	15
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0098	26		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 9.0 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 26-28/11/25

Date Reported: 01/12/25

Approved Signatory Thirushen Pillay
Designation : *Senior Civil Engineering Technician*
Date : 18/12/25

ACCREDITED IANZ TESTING LABORATORY

Test results indicated as not accredited are outside the scope of the laboratory's accreditation

WSP
Auckland (Ride Way)
Quality Management Systems Certified to ISO 9001

7A Ride Way, Albany
Private Bag 101982, NS Mail Centre, North Shore City, 0745, Auckland, New Zealand

Telephone 09 415 4660
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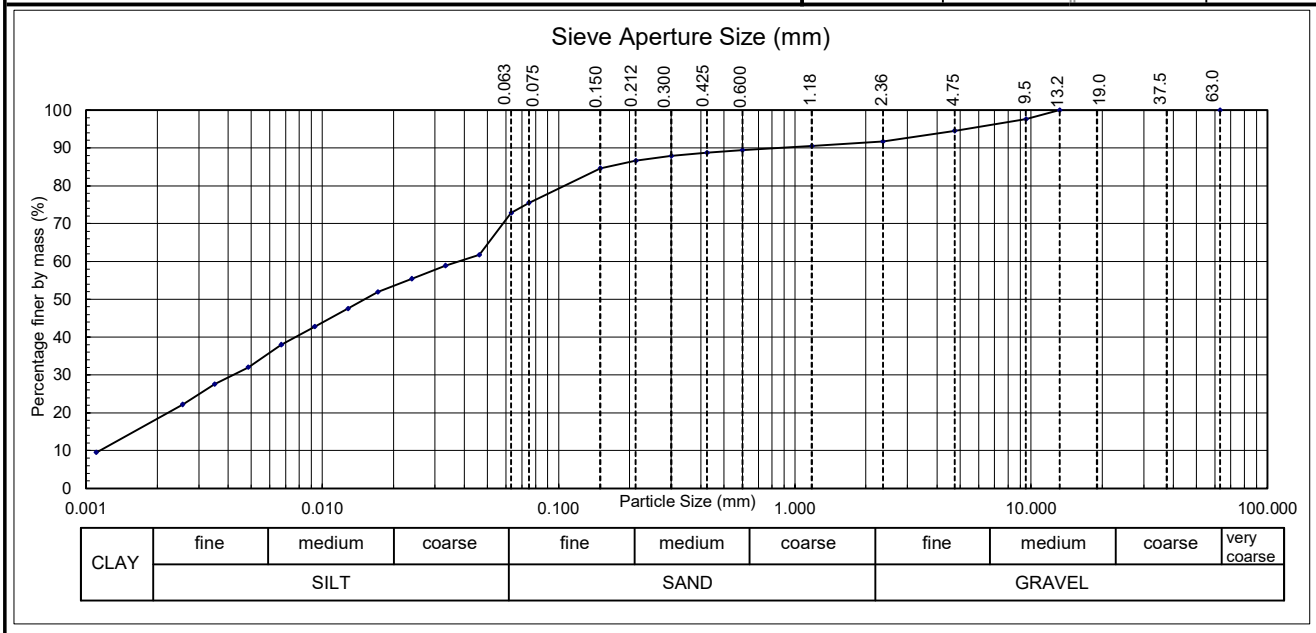
PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Borehole No:	BH2B_1144 Depth: 10.50-10.95 metres
Sampled by :	NC Site Team
Date received :	04/09/25 Specific Depth: 10.50-10.95m
Sampling method :	SPT
Sample condition :	As received
Sample description :	SILT with some clay and sand, minor gravel
Solid Particle Density (t/m^3):	2.75 Assumed
Water Content (as received):	27.3 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/14-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	95	0.300	88	0.0462	62	0.0067	38
37.5	--	2.36	92	0.212	87	0.0332	59	0.0049	32
19.0	--	1.18	91	0.150	85	0.0239	55	0.0035	28
13.2	100	0.600	89	0.075	76	0.0172	52	0.0026	22
9.5	98	0.425	89	0.063	73	0.0128	47	0.0011	9
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0093	43		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 8.9 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 19-23/09/2025

Date Reported: 01/10/25

Approved Signatory Thirushen Pillay
Designation : *Senior Civil Engineering Technician*
Date : 03/10/2025

ACCREDITED IANZ TESTING LABORATORY

Test results indicated as not accredited are outside the scope of the laboratory's accreditation

WSP
Auckland (Ride Way)
Quality Management Systems Certified to ISO 9001

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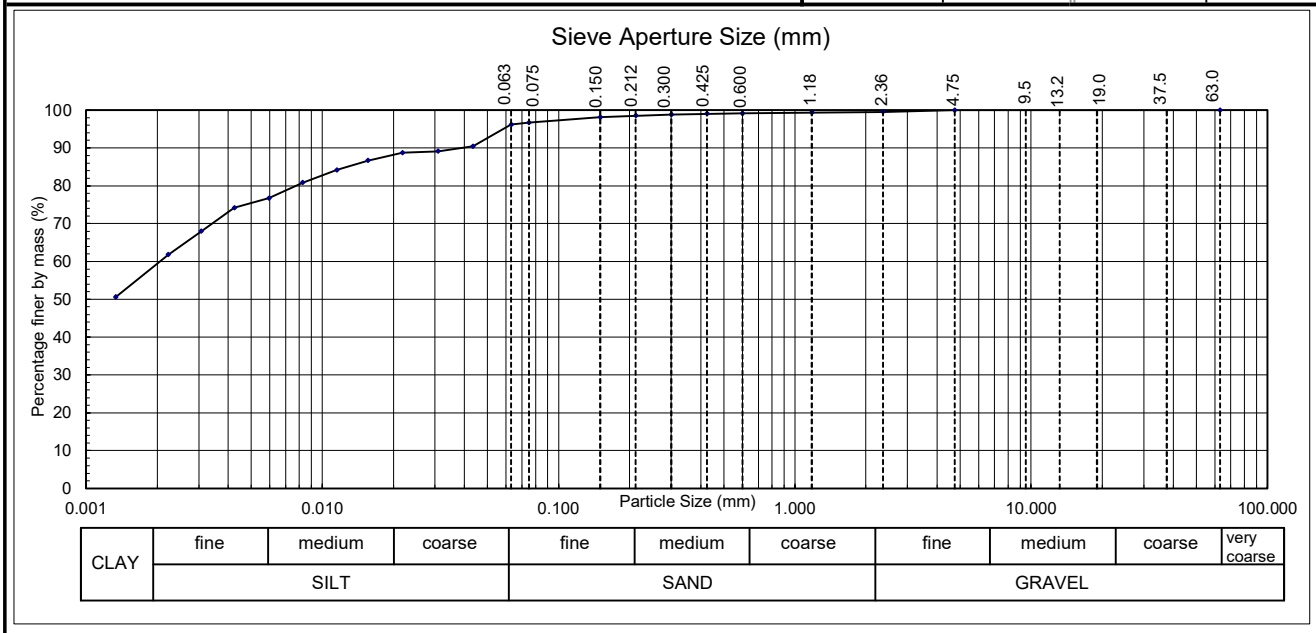
Telephone 09 415 4660
Website www.wsp.com/nz

PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd
Order No:	-
Contractor :	-
Borehole No:	BH2B_1145 Depth: 1.50-1.90 metres
Sampled by :	NC Site Team
Date received :	24/09/25
Sampling method :	Pushtube
Sample condition :	As received
Sample description :	Silty CLAY with traces of sand
Solid Particle Density (t/m^3):	2.72 Assumed
Water Content (as received):	46.7 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/114-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	100	0.300	99	0.0434	90	0.0059	77
37.5	--	2.36	100	0.212	99	0.0308	89	0.0042	74
19.0	--	1.18	99	0.150	98	0.0219	89	0.0031	68
13.2	--	0.600	99	0.075	97	0.0156	87	0.0022	62
9.5	--	0.425	99	0.063	96	0.0115	84	0.0013	51
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0083	81		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 8.9 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 05-06/11/25

Date Reported: 12/11/25

Approved Signatory Thirushen Pillay
Designation : *Senior Civil Engineering Technician*
Date : 17/11/25

ACCREDITED IANZ TESTING LABORATORY

Test results indicated as not accredited are outside the scope of the laboratory's accreditation

WSP
Auckland (Ride Way)
Quality Management Systems Certified to ISO 9001

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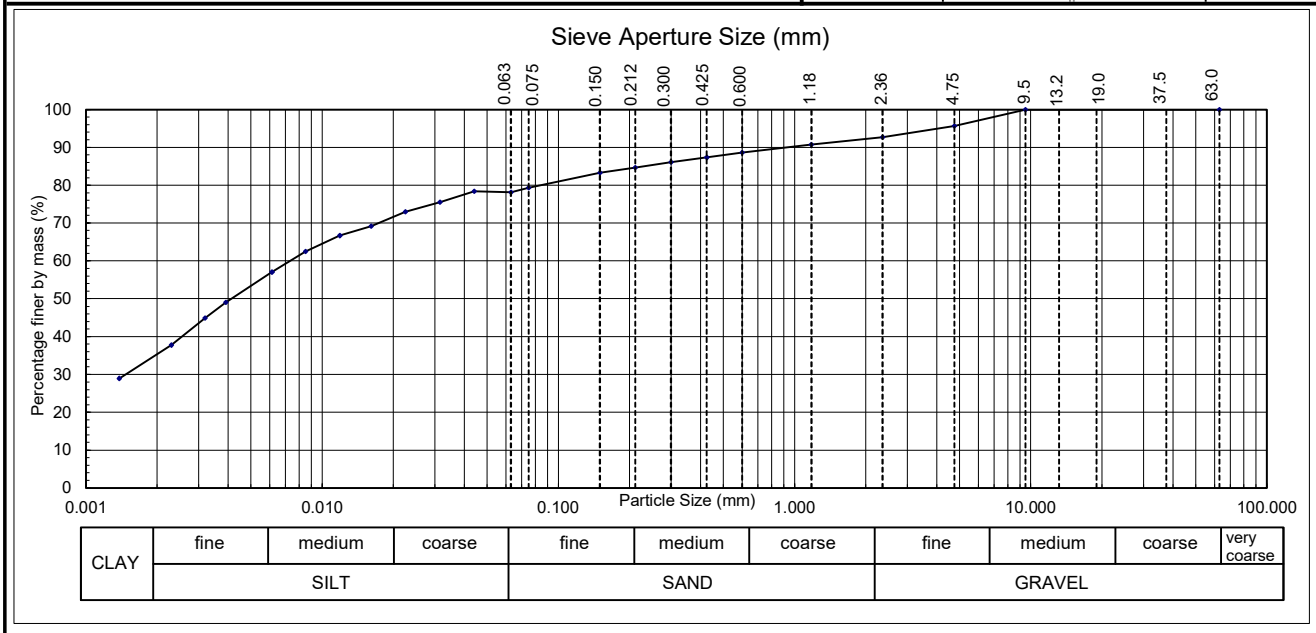
Telephone 09 415 4660
Website www.wsp.com/nz

PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Alternative to Brynderwyn Hills Section
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Borehole No:	BH2B_1146 Depth: 3.50-3.95 metres
Sampled by :	NC Site Team
Date received :	05/12/25 Specific Depth: 3.50-3.95m
Sampling method :	SPT
Sample condition :	As received
Sample description :	Clayey SILT with some sand and minor gravel
Solid Particle Density (t/m^3):	2.85 Assumed
Water Content (as received):	50.7 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/207-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	96	0.300	86	0.0441	78	0.0061	57
37.5	--	2.36	93	0.212	85	0.0315	75	0.0039	49
19.0	--	1.18	91	0.150	83	0.0225	73	0.0032	45
13.2	--	0.600	89	0.075	79	0.0161	69	0.0023	38
9.5	100	0.425	87	0.063	78	0.0119	67	0.0014	29
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0085	62		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 8.5 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested 16-18/12/25

Date Reported: 19/12/25

Approved Signatory Thirushen Pillay

Designation : *Senior Civil Engineering Technician*

Date : 23/12/2025

ACCREDITED IANZ TESTING LABORATORY

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WSP
Auckland (Ride Way)
Quality Management Systems Certified to ISO 9001

7A Ride Way, Albany
Private Bag 101982, NS Mail Centre, North Shore City, 0745, Auckland, New Zealand

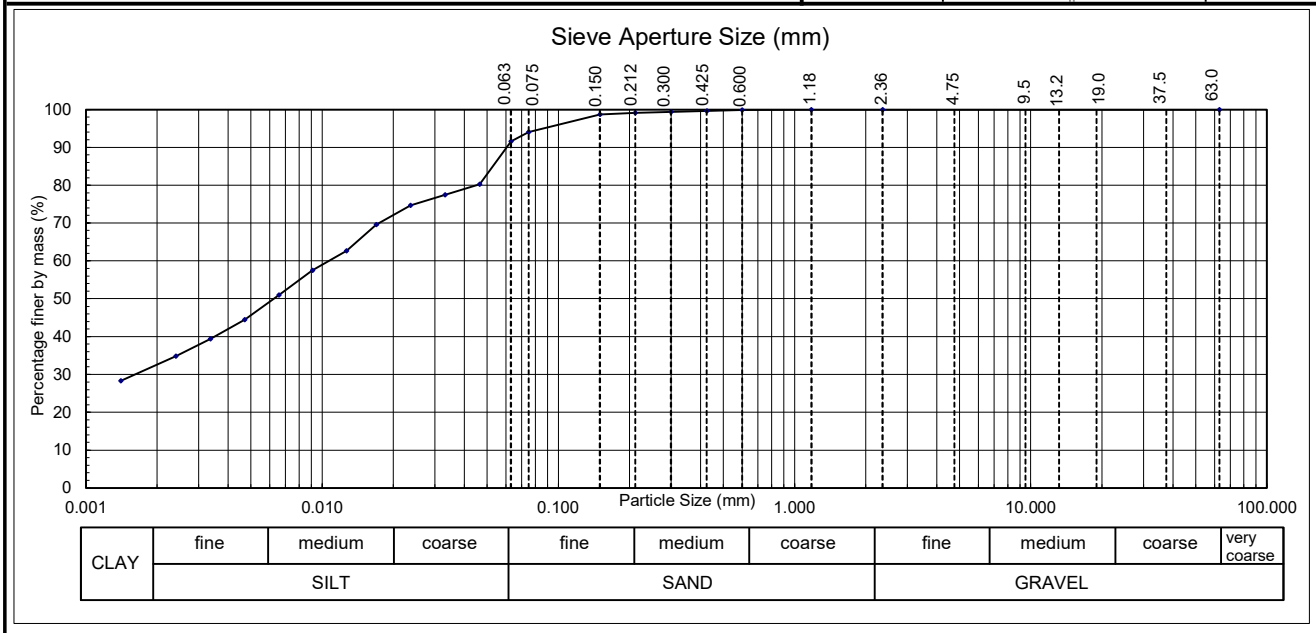
Telephone 09 415 4660
Website www.wsp.com/nz

PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Alternative to Brynderwyn Hills Section
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Borehole No:	BH2B_1146 Depth: 16.50-17.00 metres
Sampled by :	NC Site Team
Date received :	05/12/25 Specific Depth: 16.60-16.70m
Sampling method :	Pushtube
Sample condition :	As received
Sample description :	Clayey SILT with minor sand
Solid Particle Density (t/m^3):	2.72 Assumed
Water Content (as received):	62.9 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/210-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	--	0.300	99	0.0464	80	0.0066	51
37.5	--	2.36	100	0.212	99	0.0331	77	0.0047	45
19.0	--	1.18	100	0.150	99	0.0237	75	0.0034	39
13.2	--	0.600	100	0.075	94	0.0170	70	0.0024	35
9.5	--	0.425	100	0.063	92	0.0127	63	0.0014	28
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0091	58		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 9.3 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested 11-18/12/25

Date Reported: 19/12/25

Approved Signatory Thirushen Pillay

Designation : *Senior Civil Engineering Technician*

Date : 07/01/2026

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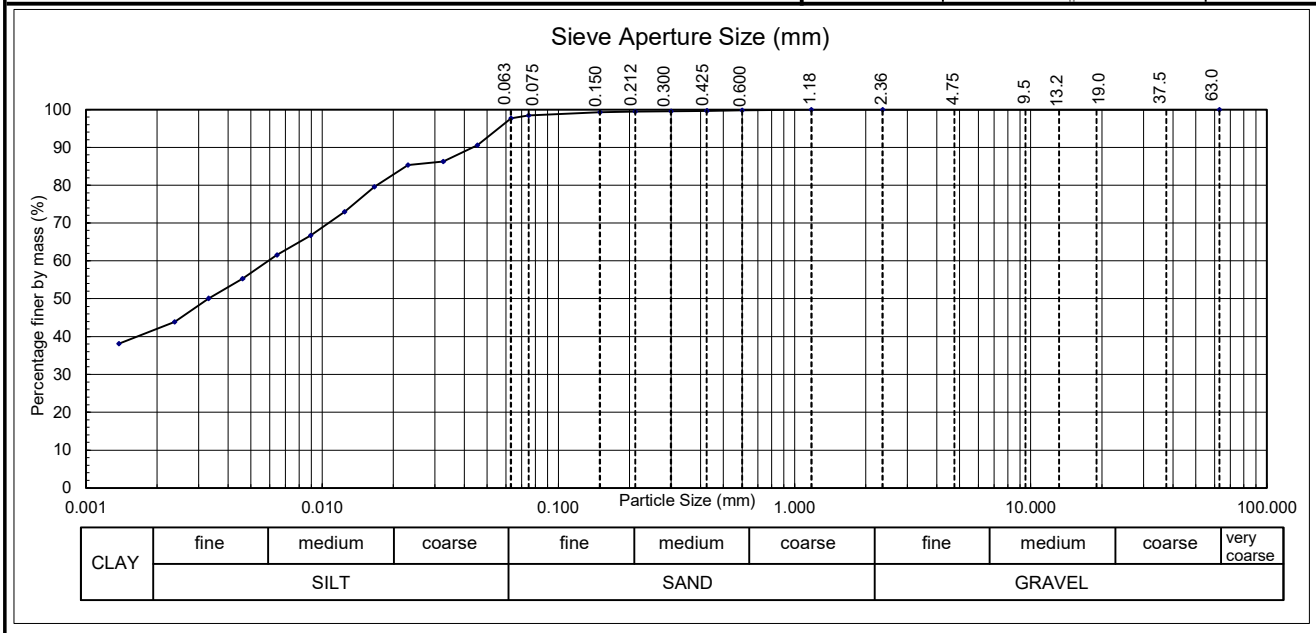
Website www.wsp.com/nz

PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Alternative to Brynderwyn Hills Section
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Borehole No:	BH2B_1146 Depth: 26.00-26.45 metres
Sampled by :	NC Site Team
Date received :	05/12/25 Specific Depth: 26.00-26.45m
Sampling method :	SPT
Sample condition :	As received
Sample description :	Clayey SILT with trace sand
Solid Particle Density (t/m^3):	2.70 Assumed
Water Content (as received):	66.3 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/211-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	--	0.300	100	0.0455	91	0.0064	62
37.5	--	2.36	100	0.212	99	0.0326	86	0.0046	55
19.0	--	1.18	100	0.150	99	0.0231	85	0.0033	50
13.2	--	0.600	100	0.075	98	0.0167	80	0.0024	44
9.5	--	0.425	100	0.063	98	0.0124	73	0.0014	38
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0090	67		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 9.2 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested 11-18/12/25

Date Reported: 19/12/25

Approved Signatory Thirushen Pillay

Designation : *Senior Civil Engineering Technician*

Date : 23/12/2025

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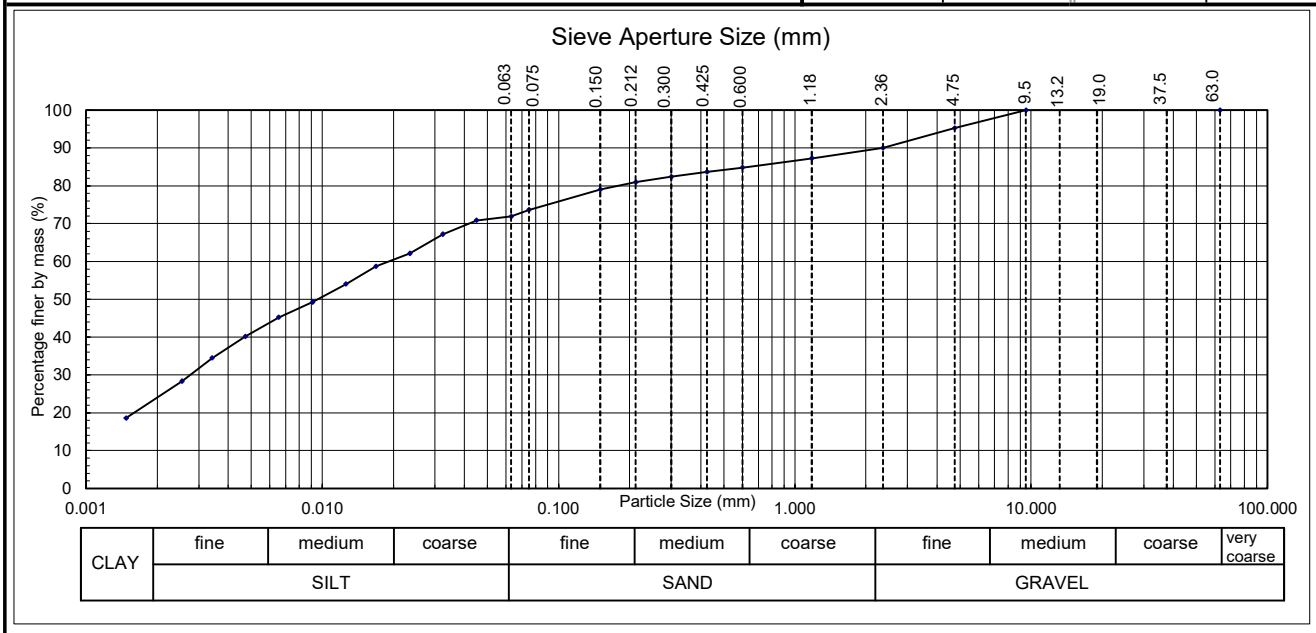
PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Borehole No:	BH2B_1147 Depth: 4.50-4.95 metres
Sampled by :	NC Site Team
Date received :	24/09/25 Specific Depth: 4.50-4.95m
Sampling method :	SPT
Sample condition :	As received
Sample description :	Clayey SILT with some sand and minor gravel
Solid Particle Density (t/m^3):	2.75 Assumed
Water Content (as received):	31.8 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/116-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	95	0.300	82	0.0448	71	0.0065	45
37.5	--	2.36	90	0.212	81	0.0323	67	0.0047	40
19.0	--	1.18	87	0.150	79	0.0235	62	0.0034	34
13.2	--	0.600	85	0.075	74	0.0169	59	0.0026	28
9.5	100	0.425	84	0.063	72	0.0126	54	0.0015	19
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0091	49		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 9.1 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 29/09/25-01/10/25

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Date Reported: 01/10/25

Approved Signatory Thirushen Pillay

Designation : *Senior Civil Engineering Technician*

Date : 22/10/2025

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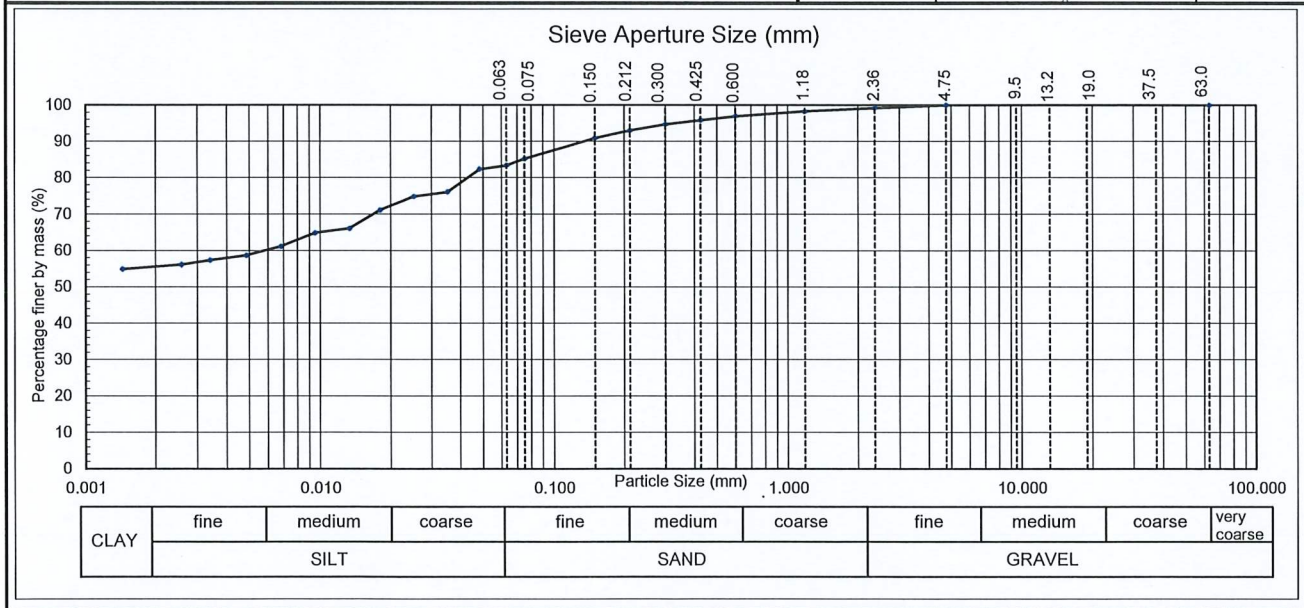
PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation For Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon Ltd & WSP NZ Ltd
Client / sample ref :	--
Contractor :	N/A
Borehole no :	BH2B_1148 Depth: 4.50 - 4.95 metres
Sampled by :	NC Site Team
Date received :	23 September 2025
Sampling method :	SPT
Sample condition :	As Received
Sample description :	Silty CLAY with some sand & a trace of gravel
Solid particle density :	2.65 t/m^3 (assumed)
Water content :	44.6 % (as received)

Project No:	1-C2466.16
Lab Ref No:	WL4708/90-HYD
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	100	0.300	95	0.0483	82	0.0068	61
37.5	--	2.36	99	0.212	93	0.0352	76	0.0049	59
19.0	--	1.18	98	0.150	91	0.0250	75	0.0034	57
13.2	--	0.600	97	0.075	85	0.0180	71	0.0026	56
9.5	--	0.425	96	0.063	83	0.0134	66	0.0014	55
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0095	65		



Test Methods	Notes
Particle Size Analysis : NZS 4402 : 1986, Test 2.8.4 (Washed Grading & Hydrometer Method)	pH suspension : 8.0 (pH Indicator stick) Sample description in accordance with NZ Geotechnical Society Inc, notes. All information supplied by client.

Date Tested: 18 October 2025

Date Reported: 28 October 2025

Approved Signatory

Designation : *Intermediate Laboratory Technician*

Date : 28 October 2025

ACCREDITED IANZ TESTING LABORATORY

All tests reported herein have been performed in accordance with the laboratory's scope of accreditation

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PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Borehole No:	BH2B_1149 Depth: 3.00-3.45 metres
Sampled by :	NC Site Team
Date received :	04/09/25 Specific Depth: 3.00-3.45m
Sampling method :	SPT
Sample condition :	As received
Sample description :	Clayey SILT with traces of sand
Solid Particle Density (t/m^3):	2.71 Assumed
Water Content (as received):	21.4 %

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

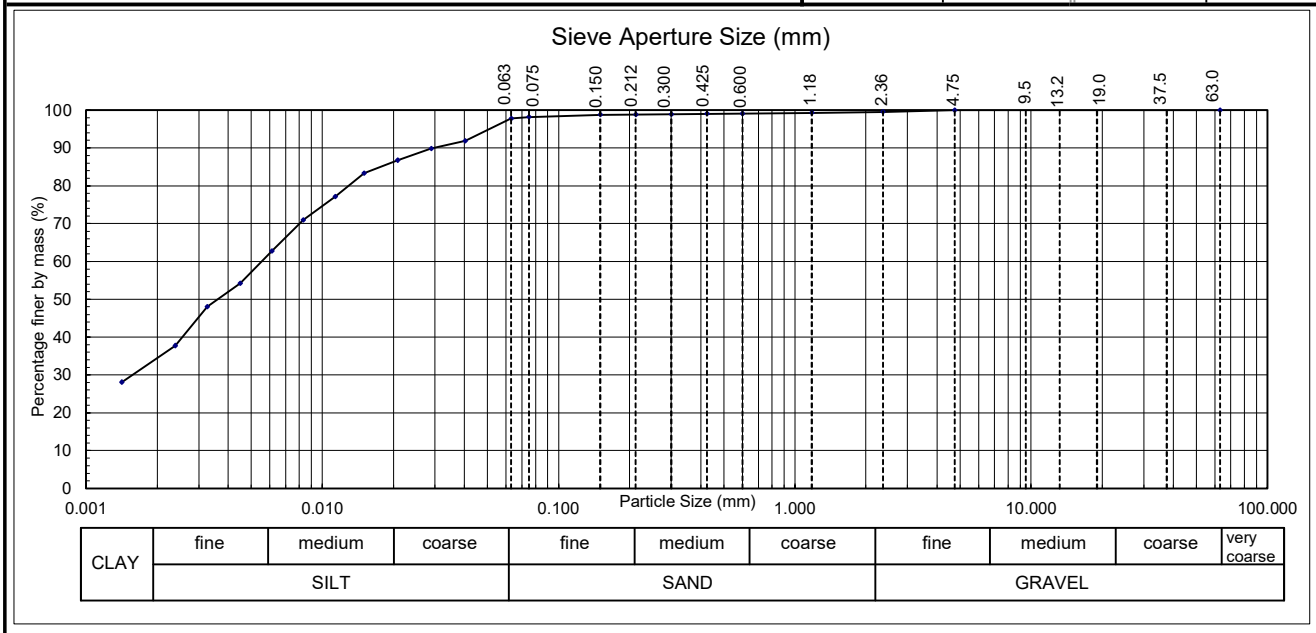
Sieve Analysis

Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)
63.0	--	4.75	100	0.300	99
37.5	--	2.36	100	0.212	99
19.0	--	1.18	99	0.150	99
13.2	--	0.600	99	0.075	98
9.5	--	0.425	99	0.063	98

Note: "--" denotes sieve not used and/or hydrometer analysis not tested

Hydrometer Analysis

Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
0.0403	92	0.0061	63
0.0289	90	0.0045	54
0.0208	87	0.0033	48
0.0150	83	0.0024	38
0.0114	77	0.0014	28
0.0083	71		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 9.4 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 17-18/9/25

Date Reported: 01/10/25

Approved Signatory Thirushen Pillay
Designation : *Senior Civil Engineering Technician*
Date : 03/10/2025

ACCREDITED IANZ TESTING LABORATORY

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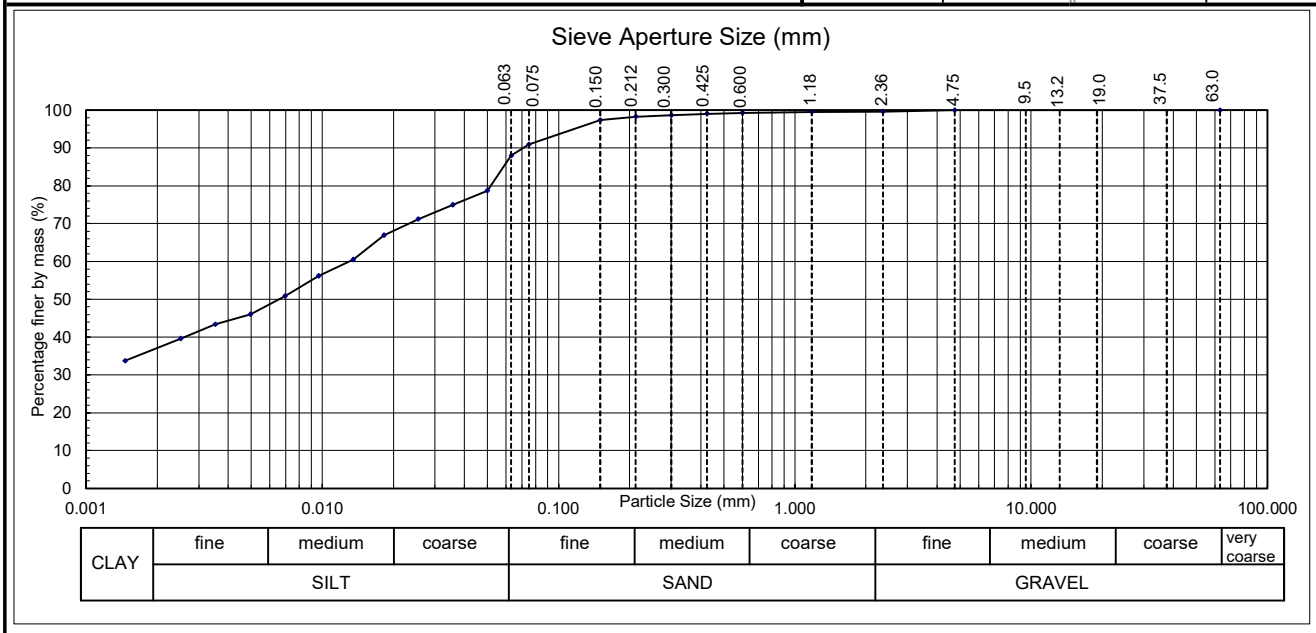
Website www.wsp.com/nz

PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Borehole No:	BH2B_1150 Depth: 2.50-2.95 metres
Sampled by :	NC Site Team
Date received :	04/09/25 Specific Depth: 2.50-2.95m
Sampling method :	SPT
Sample condition :	As received
Sample description :	Clayey SILT with some sand
Solid Particle Density (t/m^3):	2.72 Assumed
Water Content (as received):	72.0 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/18-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	100	0.300	99	0.0500	79	0.0069	51
37.5	--	2.36	100	0.212	98	0.0357	75	0.0050	46
19.0	--	1.18	100	0.150	97	0.0255	71	0.0035	43
13.2	--	0.600	99	0.075	91	0.0182	67	0.0025	40
9.5	--	0.425	99	0.063	88	0.0135	61	0.0015	34
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0097	56		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 9.5 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 16-17/9/25

Date Reported: 01/10/25

Approved Signatory Thirushen Pillay
Designation : *Senior Civil Engineering Technician*
Date : 03/10/2025

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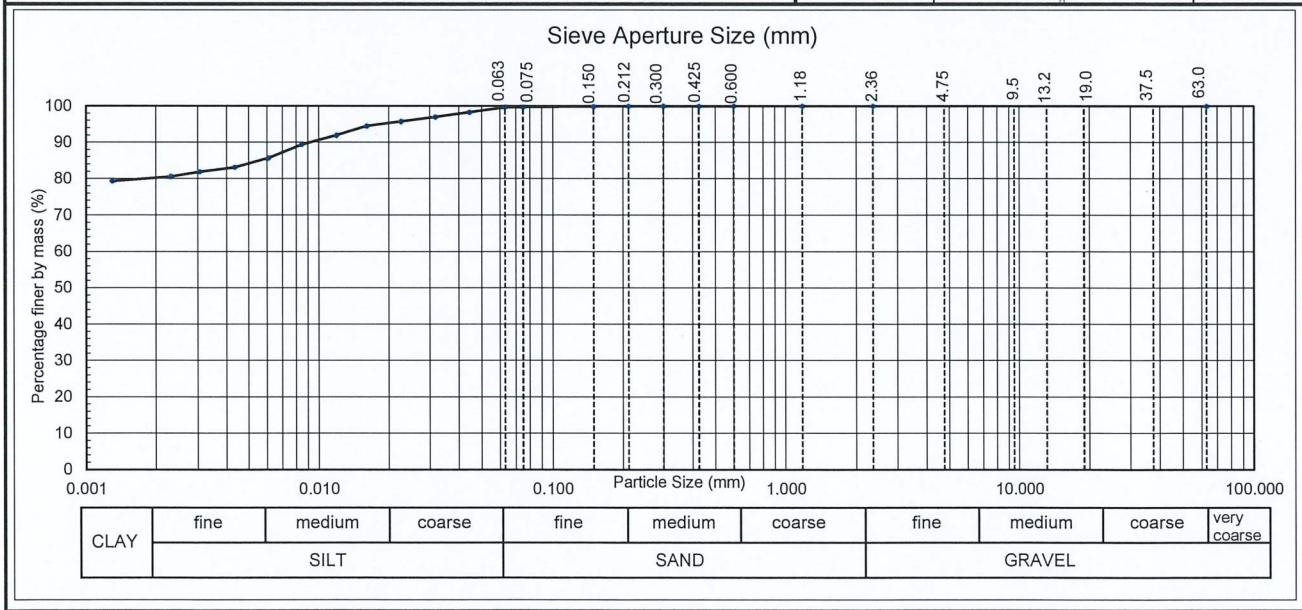
PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation For Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon Ltd & WSP NZ Ltd
Client / sample ref :	--
Contractor :	N/A
Borehole no :	BH2B_1151 Depth: 2.00 - 2.45 metres
Sampled by :	NC Site Team
Date received :	23 September 2025
Sampling method :	SPT
Sample condition :	As Received
Sample description :	Silty CLAY
Solid particle density :	2.65 t/m^3 (assumed)
Water content :	46.7 % (as received)

Project No:	1-C2466.16
Lab Ref No:	WL4708/92-HYD
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	--	0.300	100	0.0444	98	0.0061	86
37.5	--	2.36	100	0.212	100	0.0316	97	0.0044	83
19.0	--	1.18	100	0.150	100	0.0225	96	0.0031	82
13.2	--	0.600	100	0.075	100	0.0160	94	0.0023	81
9.5	--	0.425	100	0.063	100	0.0119	92	0.0013	79
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0085	89		



Test Method	Notes
Particle Size Analysis : NZS 4402 : 1986, Test 2.8.4 (Washed Grading & Hydrometer Method)	pH suspension : 8.0 (pH Indicator stick) Sample description in accordance with NZ Geotechnical Society Inc, notes. All information supplied by client.

Date Tested: 18 October 2025

Date Reported: 30 October 2025

Approved Signatory

Designation : *Intermediate Laboratory Technician*

Date : 30 October 2025

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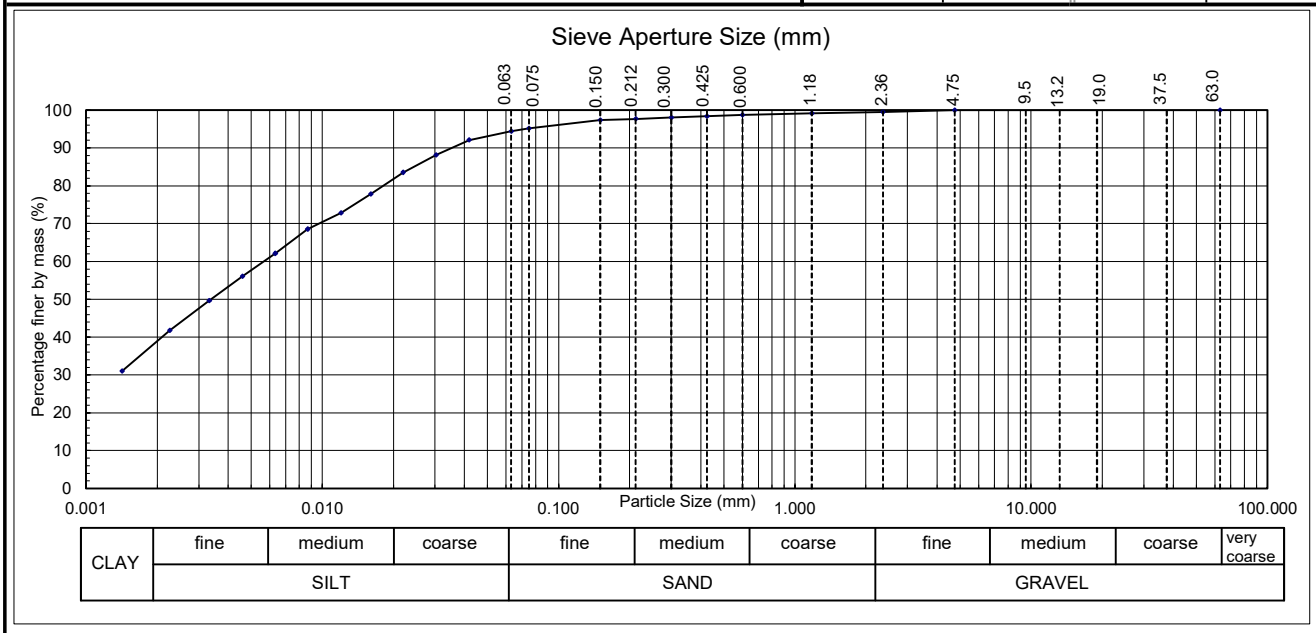
PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Borehole No:	BH2B_1152 Depth: 3.00-3.45 metres
Sampled by :	NC Site Team
Date received :	19/09/25 Specific Depth: 3.00-3.45m
Sampling method :	SPT
Sample condition :	As received
Sample description :	Clayey SILT with traces of sand and gravel
Solid Particle Density (t/m^3):	2.71 Assumed
Water Content (as received):	25.9 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/98-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	100	0.300	98	0.0419	92	0.0063	62
37.5	--	2.36	99	0.212	98	0.0303	88	0.0046	56
19.0	--	1.18	99	0.150	97	0.0220	84	0.0033	50
13.2	--	0.600	99	0.075	95	0.0160	78	0.0023	42
9.5	--	0.425	98	0.063	94	0.0120	73	0.0014	31
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0087	69		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 9.4 (Electrometric Method) All information supplied by Client

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Date Tested: 02-03/10/25 This report may only be reproduced in full

Date Reported: 01/10/25

Approved Signatory Thirushen Pillay
Designation : *Senior Civil Engineering Technician*
Date : 12/10/2025

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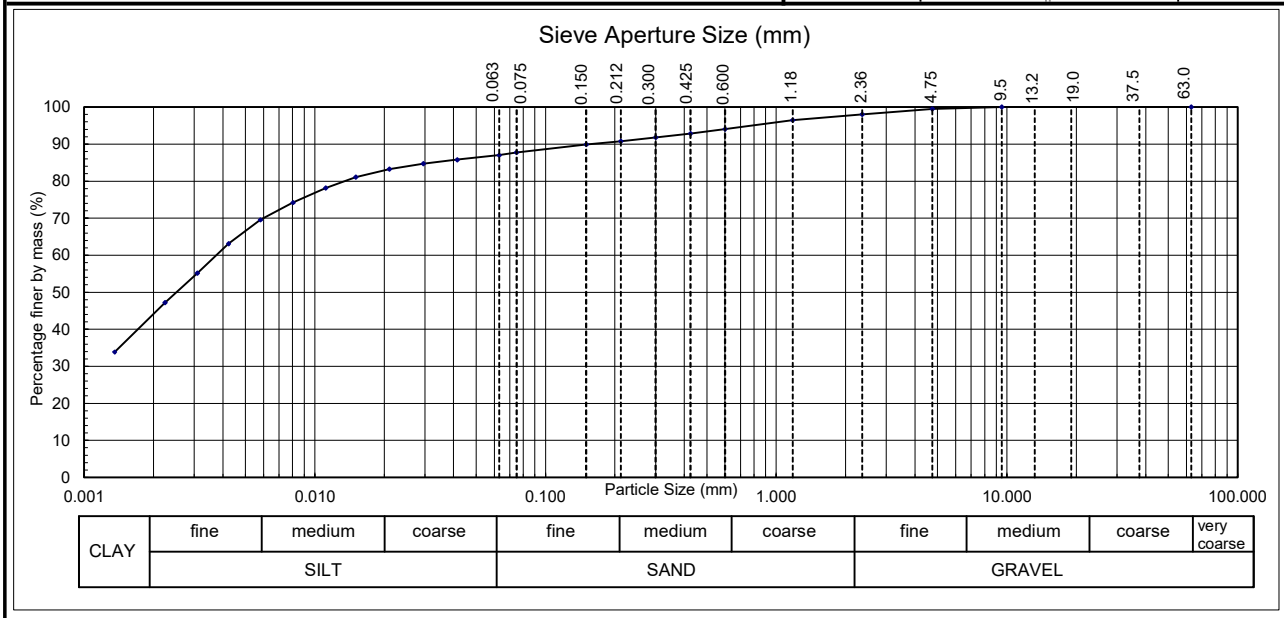
PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Alternative to Brynderwyn Hills Section
Client :	NZTA C/- Aurecon & WSP NZ Ltd
Order No:	-
Contractor :	-
Borehole No:	BH2B_1153 Depth: 6.00-6.45 metres
Sampled by :	NC Site Team
Date received :	21/11/2025
Sampling method :	SPT
Sample condition :	As received
Sample description :	Silty CLAY with minor sand and traces of gravel
Solid Particle Density (t/m^3):	2.74 Assumed
Water Content (as received):	37.5 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/186-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	99	0.300	92	0.0415	86	0.0058	70
37.5	--	2.36	98	0.212	91	0.0295	85	0.0042	63
19.0	--	1.18	96	0.150	90	0.0211	83	0.0031	55
13.2	--	0.600	94	0.075	88	0.0151	81	0.0022	47
9.5	100	0.425	93	0.063	87	0.0112	78	0.0014	34
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0080	74		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 8.8 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 25-28/11/25

Date Reported: 01/12/25

Approved Signatory Thirushen Pillay
Designation : *Senior Civil Engineering Technician*
Date : 18/12/25

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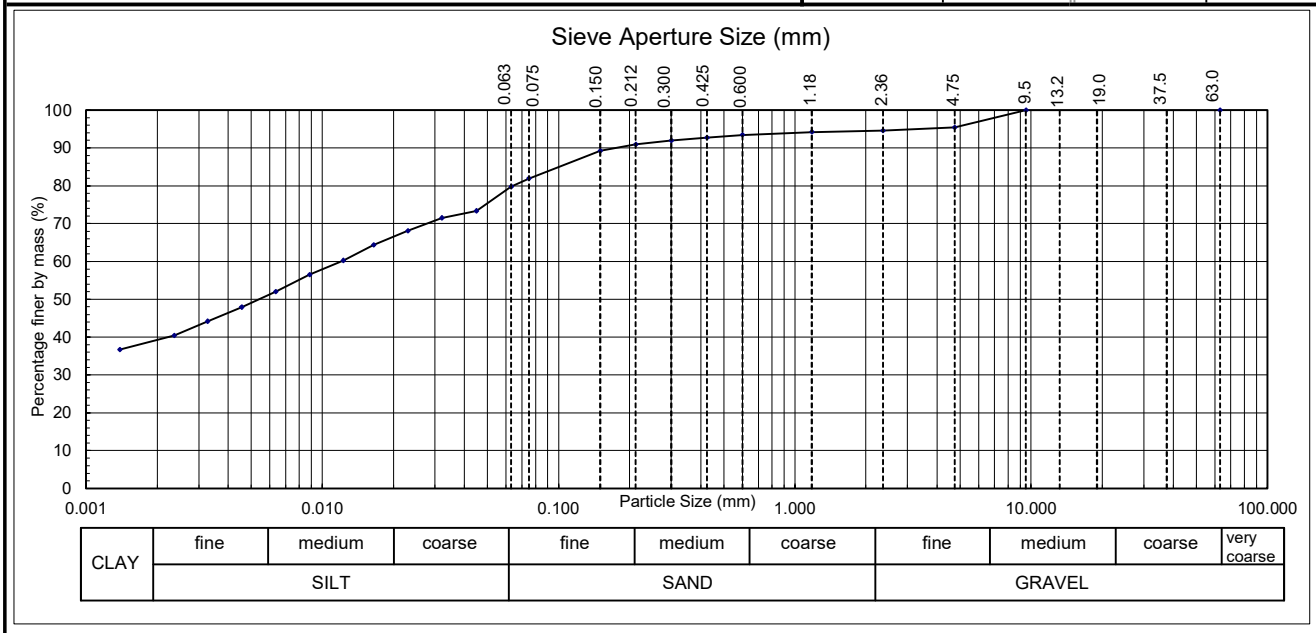
PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Borehole No:	BH2B_1154 Depth: 3.00-3.45 metres
Sampled by :	NC Site Team
Date received :	05/11/25 Specific Depth: 3.00-3.45m
Sampling method :	SPT
Sample condition :	As received
Sample description :	Clayey SILT with some sand and minor gravel
Solid Particle Density (t/m^3):	2.70 Tested
Water Content (as received):	40.2 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/175-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	95	0.300	92	0.0449	73	0.0063	52
37.5	--	2.36	95	0.212	91	0.0320	71	0.0046	48
19.0	--	1.18	94	0.150	89	0.0230	68	0.0033	44
13.2	--	0.600	93	0.075	82	0.0165	64	0.0024	40
9.5	100	0.425	93	0.063	80	0.0123	60	0.0014	37
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0088	57		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 9.1 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

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Date Tested: 12-14/11/25

Date Reported: 19/11/25

Approved Signatory Thirushen Pillay

Designation : *Senior Civil Engineering Technician*

Date : 23/11/2025

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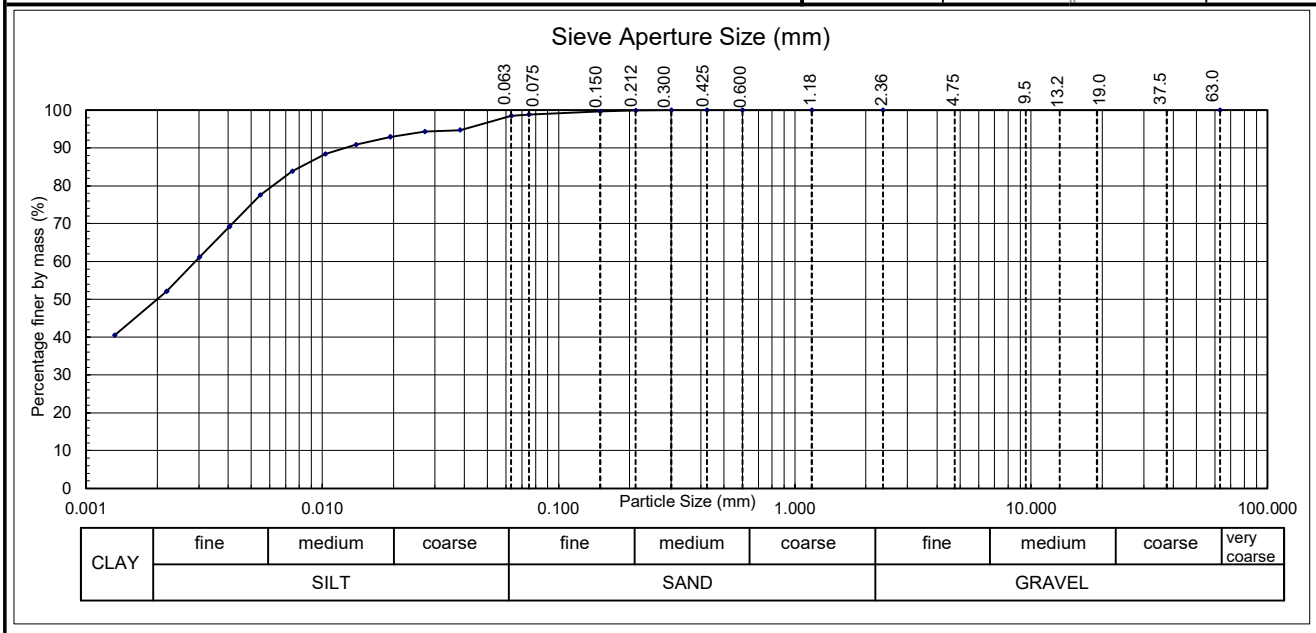
PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Borehole No:	BH2B_1155 Depth: 3.00-3.45 metres
Sampled by :	NC Site Team
Date received :	05/11/25 Specific Depth: 3.00-3.45m
Sampling method :	SPT
Sample condition :	As received
Sample description :	Silty CLAY with traces of sand
Solid Particle Density (t/m^3):	2.75 Assumed
Water Content (as received):	31.2 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/178-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	--	0.300	100	0.0383	95	0.0055	78
37.5	--	2.36	100	0.212	100	0.0272	94	0.0040	69
19.0	--	1.18	100	0.150	100	0.0194	93	0.0030	61
13.2	--	0.600	100	0.075	99	0.0139	91	0.0022	52
9.5	--	0.425	100	0.063	98	0.0103	88	0.0013	41
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0075	84		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 9.1 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 11-14/11/25

Date Reported: 19/11/25

Approved Signatory Thirushen Pillay

Designation : *Senior Civil Engineering Technician*

Date : 23/11/2025

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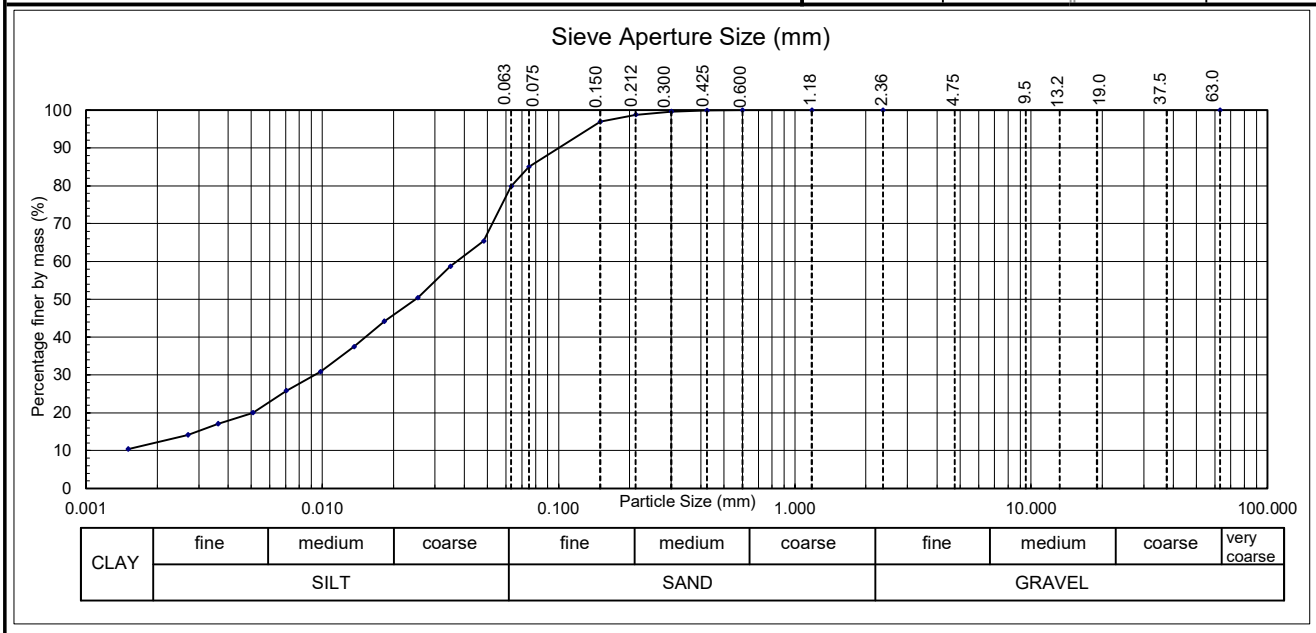
PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Borehole No:	BH2B_1157 Depth: 4.50-4.95 metres
Sampled by :	NC Site Team
Date received :	05/11/25 Specific Depth: 4.50-4.95m
Sampling method :	SPT
Sample condition :	As received
Sample description :	SILT with some clay and sand
Solid Particle Density (t/m^3):	2.74 Tested
Water Content (as received):	51.7 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/181-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	--	0.300	100	0.0482	65	0.0070	26
37.5	--	2.36	100	0.212	99	0.0349	59	0.0051	20
19.0	--	1.18	100	0.150	97	0.0254	50	0.0036	17
13.2	--	0.600	100	0.075	85	0.0183	44	0.0027	14
9.5	--	0.425	100	0.063	80	0.0136	37	0.0015	10
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0098	31		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 9.1 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

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Date Tested: 13-14/11/25

Date Reported: 19/11/25

Approved Signatory Thirushen Pillay

Designation : *Senior Civil Engineering Technician*

Date : 23/11/2025

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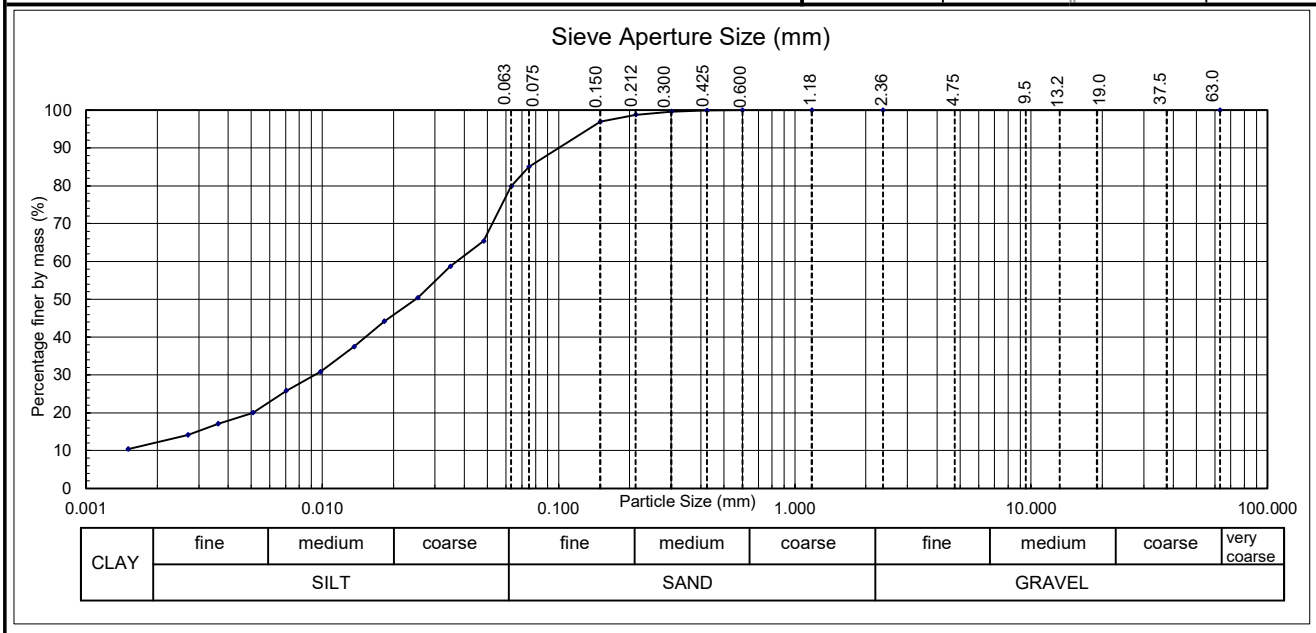
PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Borehole No:	BH2B_1157 Depth: 4.50-4.95 metres
Sampled by :	NC Site Team
Date received :	05/11/25 Specific Depth: 4.50-4.95m
Sampling method :	SPT
Sample condition :	As received
Sample description :	SILT with some clay and sand
Solid Particle Density (t/m^3):	2.74 Tested
Water Content (as received):	51.7 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/181-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	--	0.300	100	0.0482	65	0.0070	26
37.5	--	2.36	100	0.212	99	0.0349	59	0.0051	20
19.0	--	1.18	100	0.150	97	0.0254	50	0.0036	17
13.2	--	0.600	100	0.075	85	0.0183	44	0.0027	14
9.5	--	0.425	100	0.063	80	0.0136	37	0.0015	10
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0098	31		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 9.1 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

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Date Tested: 13-14/11/25

Date Reported: 19/11/25

Approved Signatory Thirushen Pillay

Designation : *Senior Civil Engineering Technician*

Date : 23/11/2025

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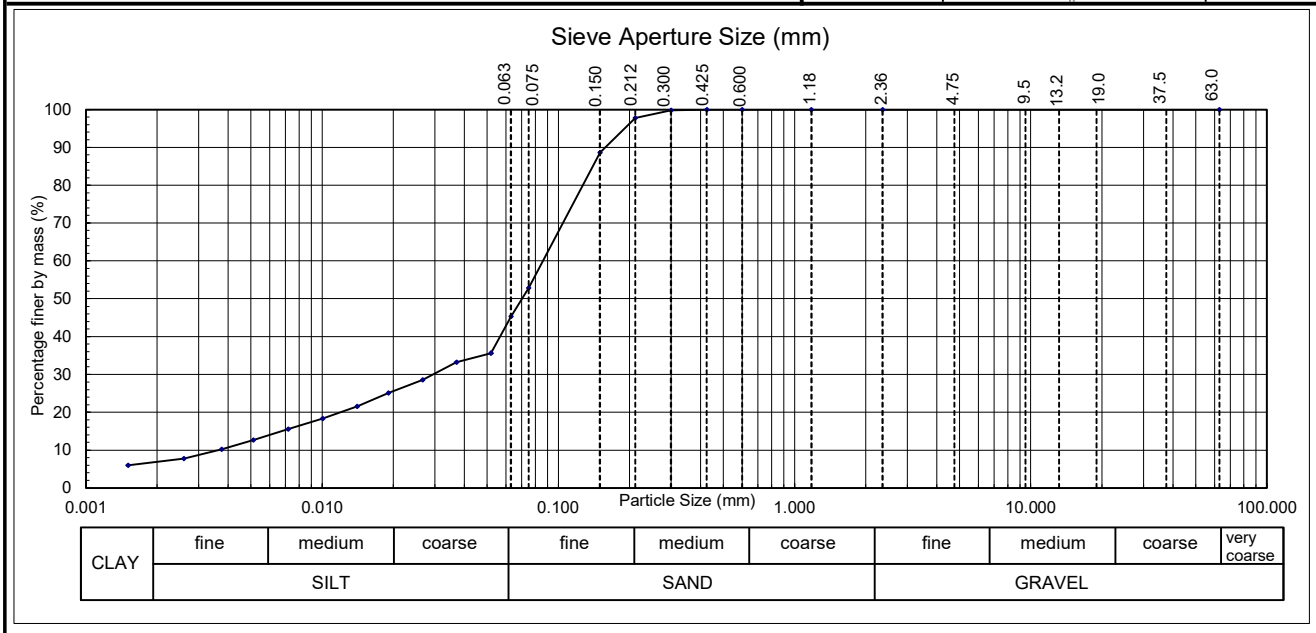
PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Alternative to Brynderwyn Hills Section
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Borehole No:	BH2B_1159 Depth: 3.00-3.45 metres
Sampled by :	NC Site Team
Date received :	05/12/25 Specific Depth: 3.00-3.45m
Sampling method :	SPT
Sample condition :	As received
Sample description :	Silty SAND with minor clay
Solid Particle Density (t/m^3):	2.70 Tested
Water Content (as received):	29.3 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/212-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	--	0.300	100	0.0519	36	0.0072	16
37.5	--	2.36	100	0.212	98	0.0370	33	0.0051	13
19.0	--	1.18	100	0.150	89	0.0266	29	0.0038	10
13.2	--	0.600	100	0.075	53	0.0191	25	0.0026	8
9.5	--	0.425	100	0.063	45	0.0141	22	0.0015	6
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0100	18		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 9.6 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested 09-16/12/25

Date Reported: 19/12/25

Approved Signatory Thirushen Pillay

Designation : *Senior Civil Engineering Technician*

Date : 07/01/2026

ACCREDITED IANZ TESTING LABORATORY

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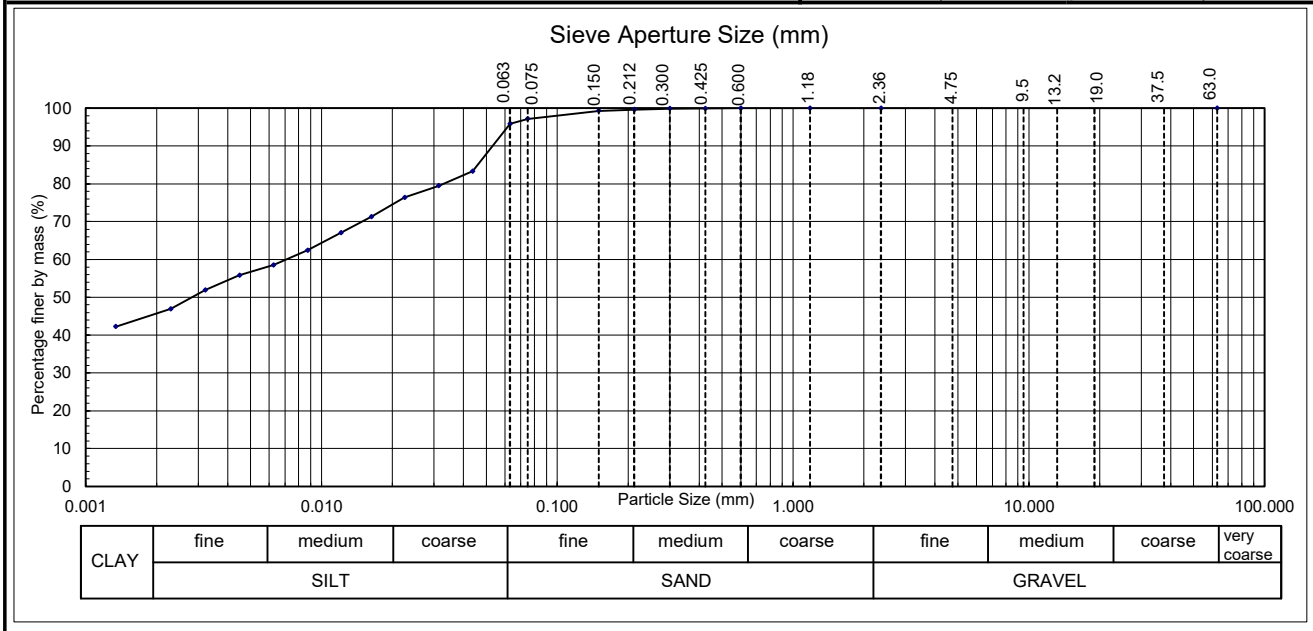
PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Borehole No:	BH2B_1160 Depth: 4.50-4.95 metres
Sampled by :	NC Site Team
Date received :	24/10/25 Specific Depth: 4.50-4.95m
Sampling method :	SPT
Sample condition :	As received
Sample description :	Clayey SILT with minor sand
Solid Particle Density (t/m^3):	2.75 Assumed
Water Content (as received):	36.9 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/157-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	--	0.300	100	0.0437	83	0.0063	59
37.5	--	2.36	100	0.212	100	0.0314	79	0.0045	56
19.0	--	1.18	100	0.150	99	0.0225	76	0.0032	52
13.2	--	0.600	100	0.075	97	0.0163	71	0.0023	47
9.5	--	0.425	100	0.063	96	0.0121	67	0.0013	42
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0087	62		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 9.6 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 06-10/11/25

Date Reported: 12/11/25

Approved Signatory Thirushen Pillay
Designation : *Senior Civil Engineering Technician*
Date : 17/11/2025

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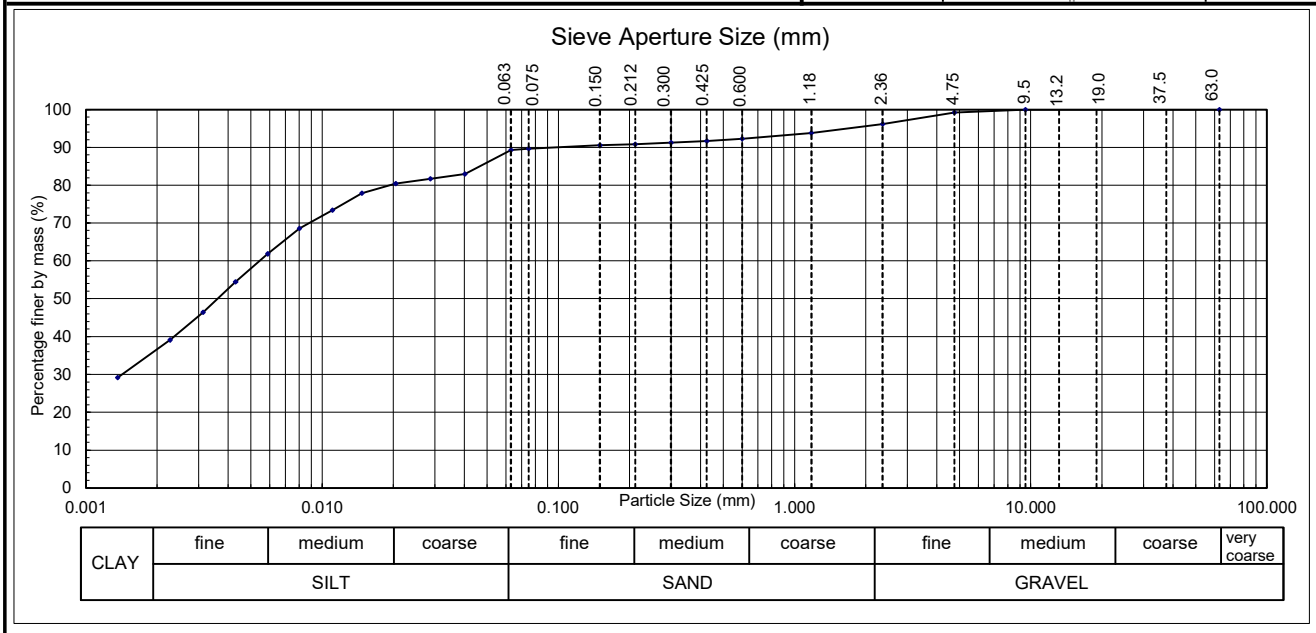
PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Alternative to Brynderwyn Hills Section
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Borehole No:	BH2B_1161 Depth: 6.00-6.45 metres
Sampled by :	NC Site Team
Date received :	21/11/25 Specific Depth: 6.00-6.45m
Sampling method :	SPT
Sample condition :	As received
Sample description :	Clayey SILT with minor sand and traces of gravel
Solid Particle Density (t/m^3):	2.73 Assumed
Water Content (as received):	19.7 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/199-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	99	0.300	91	0.0403	83	0.0059	62
37.5	--	2.36	96	0.212	91	0.0287	82	0.0043	54
19.0	--	1.18	94	0.150	90	0.0205	80	0.0031	46
13.2	--	0.600	92	0.075	90	0.0147	78	0.0023	39
9.5	100	0.425	92	0.063	89	0.0111	73	0.0014	29
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0080	69		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 9.8 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested 02-16/12/25

Date Reported: 18/12/25

Approved Signatory Thirushen Pillay

Designation : *Senior Civil Engineering Technician*

Date : 23/12/2025

ACCREDITED IANZ TESTING LABORATORY

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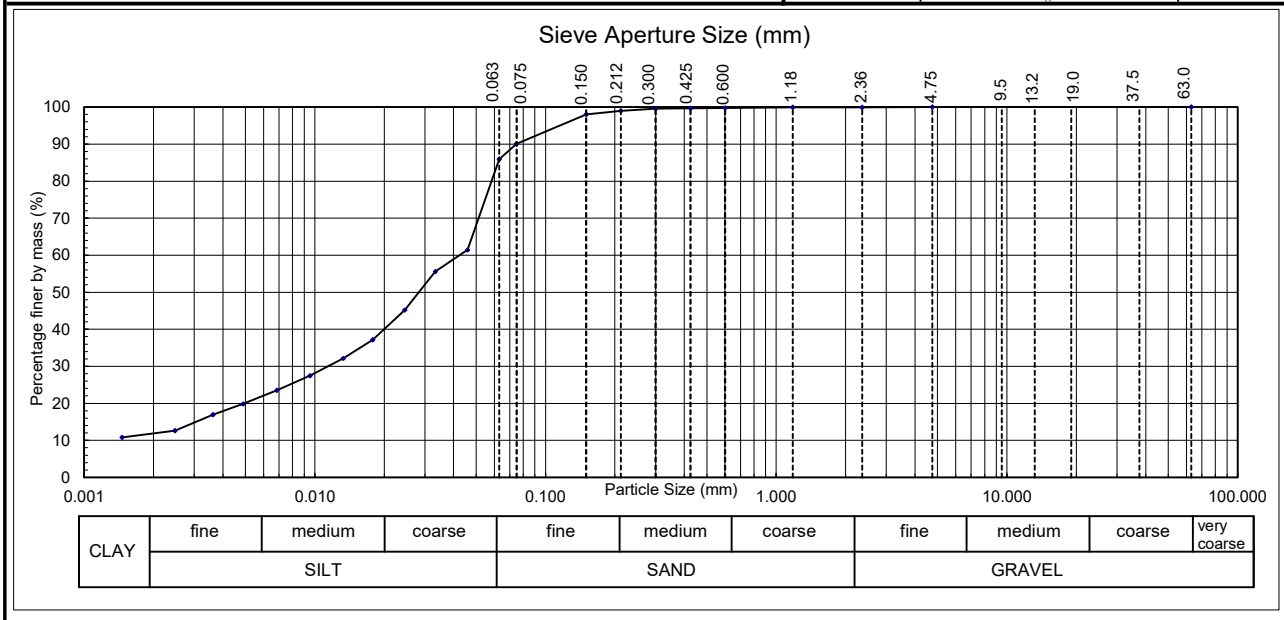
PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Alternative to Brynderwyn Hills Section
Client :	NZTA C/- Aurecon & WSP NZ Ltd
Order No:	-
Contractor :	-
Borehole No:	BH2B_1162 Depth: 3.50-3.95 metres
Sampled by :	NC Site Team
Date received :	21/11/2025
Sampling method :	SPT
Sample condition :	As received
Sample description :	SILT with some clay and sand
Solid Particle Density (t/m^3):	2.73 Tested
Water Content (as received):	33.2 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/188-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	100	0.300	100	0.0459	61	0.0068	23
37.5	--	2.36	100	0.212	99	0.0333	56	0.0049	20
19.0	--	1.18	100	0.150	98	0.0245	45	0.0036	17
13.2	--	0.600	100	0.075	90	0.0179	37	0.0025	13
9.5	--	0.425	100	0.063	86	0.0133	32	0.0015	11
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0095	27		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 9.3 (Electrometric Method) **All information supplied by Client**

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 27-28/11/25 **This report may only be reproduced in full**

Date Reported: 01/12/25

Approved Signatory Thirushen Pillay
Designation : *Senior Civil Engineering Technician*
Date : 18/12/25

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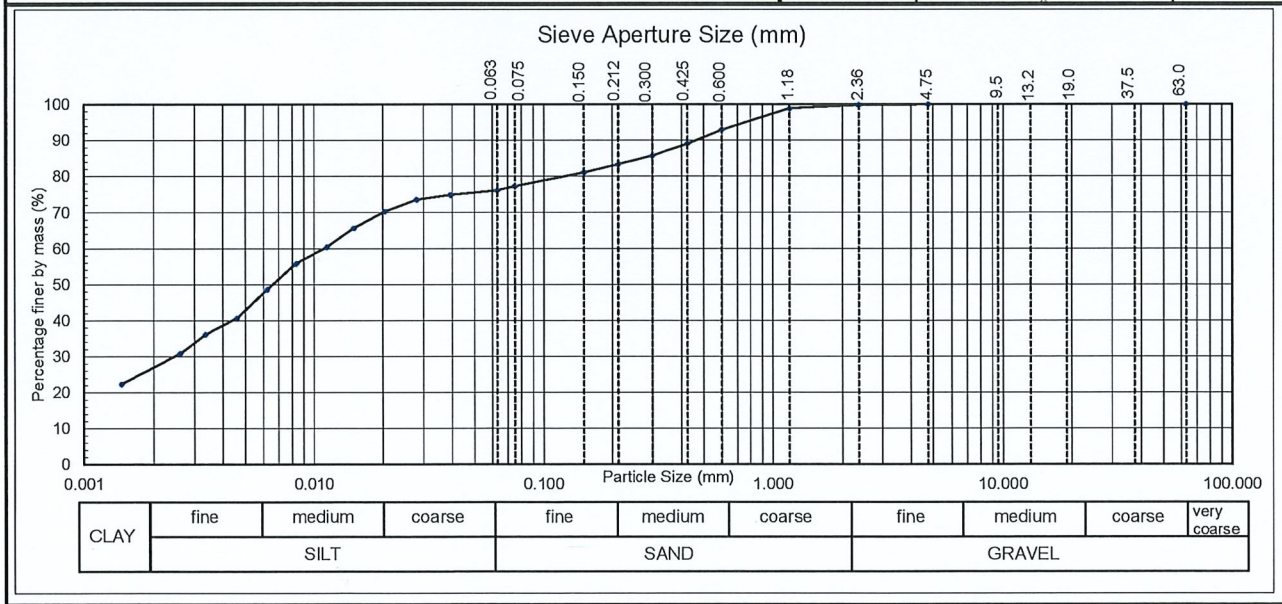
PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project : Ground Investigation for Northland Corridor
Location : Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client : NZTA C/- Aurecon & WSP NZ Ltd
Order No: -
Contractor : -
Borehole No: BH2B_1164 Depth: 4.70-5.15 metres
Sampled by : NC Site Team
Date received : 31/10/25
Sampling method : SPT
Sample condition : Natural; as excavated
Sample description : Refer to BH2B_1164 log report
Solid Particle Density (t/m^3): 2.68 Assumed
Water Content (as received): 29.0 %

Project No:	1-C2466.16
Lab Ref No:	WL4708/165-Hydro
Client Ref:	-

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	100	0.300	86	0.0392	75	0.0062	49
37.5	--	2.36	100	0.212	83	0.0280	74	0.0046	41
19.0	--	1.18	99	0.150	81	0.0204	70	0.0034	36
13.2	--	0.600	93	0.075	77	0.0150	66	0.0026	31
9.5	--	0.425	89	0.063	76	0.0114	60	0.0015	22
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0083	56		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 10/11/25

Date Reported: 17/11/25

Approved Signatory
Designation : *Senior Civil Engineering Technician*
Date : 17/11/25

ACCREDITED IANZ TESTING LABORATORY

Test results indicated as not accredited are outside the scope of the laboratory's accreditation

WSP
Christchurch (Hayton Rd)
Quality Management Systems Certified to ISO 9001

52C Hayton Rd
PO Box 1482, Christchurch Mail Centre,
8140, Christchurch, New Zealand

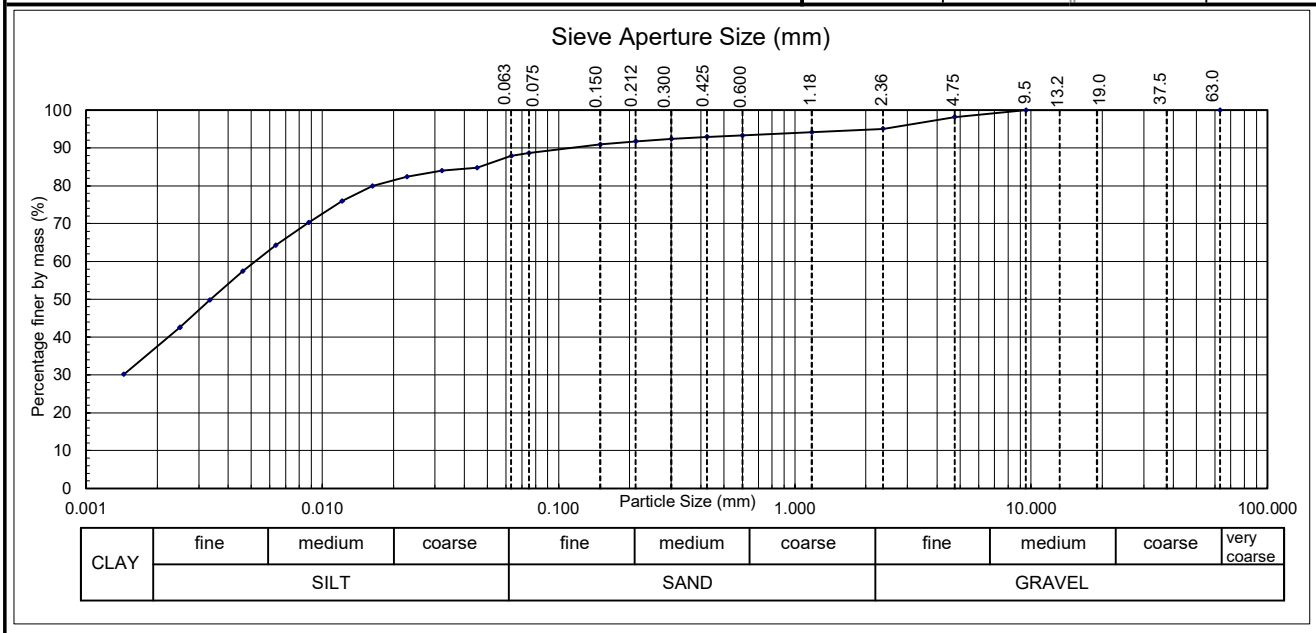
Telephone 03 343 0739
Website www.wsp.com/nz

PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Test Pit No:	TP2B_1114 Depth: 1.90-2.60 metres
Sampled by :	NC Site Team
Date received :	19/09/25 Specific Depth: 1.90-2.60m
Sampling method :	Test Pit
Sample condition :	As received
Sample description :	Clayey SILT with minor sand and traces of gravel
Solid Particle Density (t/m^3):	2.76 Tested
Water Content (as received):	29.3 %

Project No:	1-C2466.16
Lab Ref No:	WL4709/2-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	98	0.300	92	0.0452	85	0.0064	64
37.5	--	2.36	95	0.212	92	0.0321	84	0.0046	57
19.0	--	1.18	94	0.150	91	0.0228	82	0.0033	50
13.2	--	0.600	93	0.075	89	0.0163	80	0.0025	43
9.5	100	0.425	93	0.063	88	0.0121	76	0.0014	30
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0088	70		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 9.0 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 26/09/25-01/10/25

Date Reported: 16/10/25

Approved Signatory Thirushen Pillay
Designation : *Senior Civil Engineering Technician*
Date : 26/10/2025

ACCREDITED IANZ TESTING LABORATORY

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WSP
Auckland (Ride Way)
Quality Management Systems Certified to ISO 9001

7A Ride Way, Albany
Private Bag 101982, NS Mail Centre, North Shore City, 0745, Auckland, New Zealand

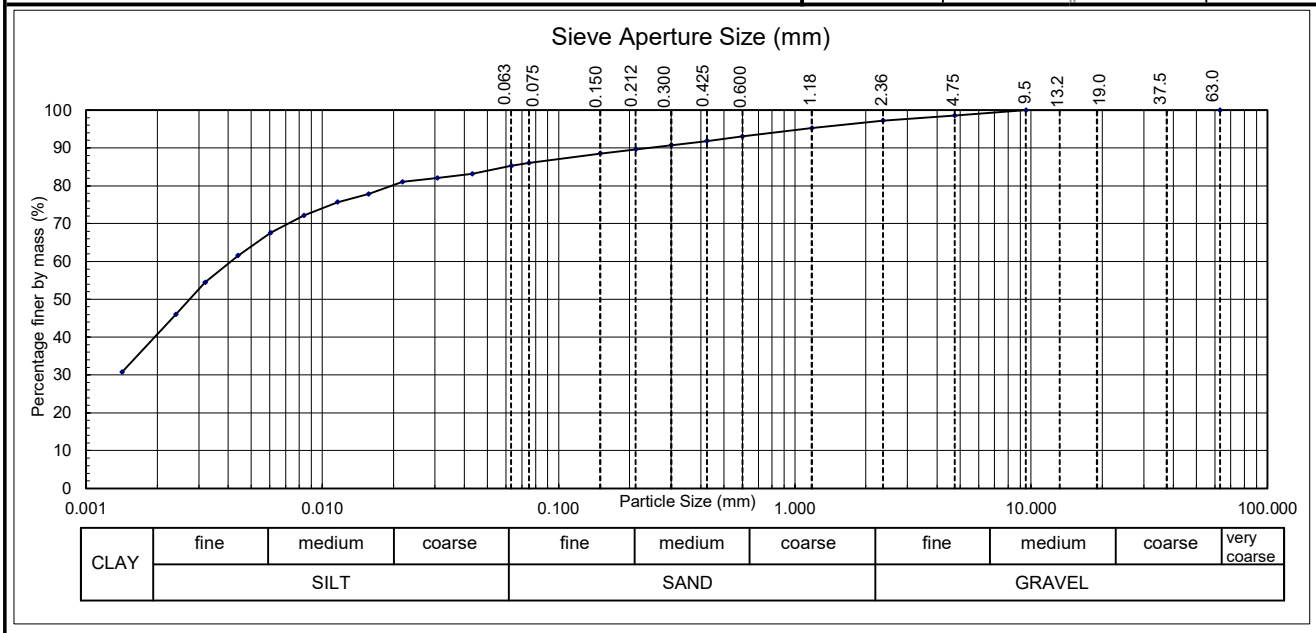
Telephone 09 415 4660
Website www.wsp.com/nz

PARTICLE SIZE ANALYSIS (HYDROMETER METHOD)
TEST REPORT

Project :	Ground Investigation for Northland Corridor
Location :	Section 2 Te Hana to Port Marsden Highway, Section 2B GI
Client :	NZTA C/- Aurecon & WSP NZ Ltd.
Order No:	-
Contractor :	N/A
Test Pit No:	TP2B_1121 Depth: 1.90-2.50 metres
Sampled by :	NC Site Team
Date received :	19/09/25 Specific Depth: 1.90-2.50m
Sampling method :	Digger
Sample condition :	As received
Sample description :	Clayey SILT with some sand and traces of gravel
Solid Particle Density (t/m^3):	2.76 Tested
Water Content (as received):	27.6 %

Project No:	1-C2466.16
Lab Ref No:	WL4709/4-Hydro
Client Ref:	1-C2466.16

Sieve Analysis						Hydrometer Analysis			
Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Sieve Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)	Particle Size (mm)	Passing (%)
63.0	--	4.75	99	0.300	91	0.0432	83	0.0060	68
37.5	--	2.36	97	0.212	90	0.0307	82	0.0044	62
19.0	--	1.18	95	0.150	89	0.0218	81	0.0032	54
13.2	--	0.600	93	0.075	86	0.0157	78	0.0024	46
9.5	100	0.425	92	0.063	85	0.0116	76	0.0014	31
Note:	"--" denotes sieve not used and/or hydrometer analysis not tested					0.0084	72		



Test Methods	Notes
Particle Size Analysis: NZS 4402:1986: Test 2.8.4 (Washed Grading & Hydrometer Method)	pH of suspension : 9.2 (Electrometric Method) All information supplied by Client

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.

Date Tested: 26/09/25-01/10/25

Date Reported: 16/10/25

Approved Signatory Thirushen Pillay
Designation : *Senior Civil Engineering Technician*
Date : 28/10/2025

ACCREDITED IANZ TESTING LABORATORY

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