

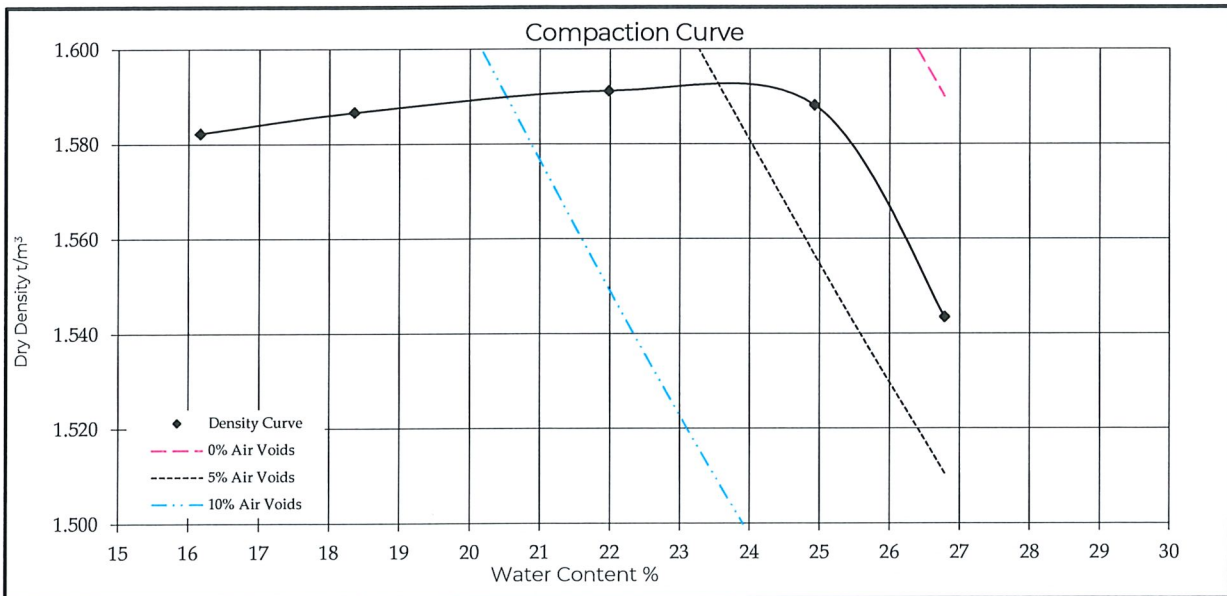
**DRY DENSITY / WATER CONTENT RELATIONSHIP
HEAVY COMPACTION**



Project : Ground Investigation for Northland Corridor
 Location : Alternative to Brynderwyn Hills section: A new route close to SH1
 Client : NZTA C/- Aurecon & WSP NZ Ltd
 Contractor : -
 Sampled by : NC Site Team
 Date sampled : 27/09/25
 Sampling method : Digger
 Sample description : Refer to TP2B_1103 log report
 Sample condition : Natural; as excavated
 Solid density : 2.77 t/m³ (Tested)
 Source : TP2B_1103
 Depth of sample : 4.80-5.00 m

Project No : 1-C2466.16
 Lab Ref No : WL4709/10-MDD
 Client Ref No : -

Test Results					
Maximum dry density	1.59	t/m ³	Natural water content	32.3	%
Optimum water content	24	%	Fraction tested	Passing 19mm	
Sample ID	-12%	-10%	-8%	-6%	-4%
Bulk density t/m ³	1.838	1.878	1.941	1.984	1.957
Water content %	16.2	18.4	22.0	24.9	26.8
Dry density t/m ³	1.582	1.587	1.591	1.588	1.544
Sample condition	Dry	Dry	Dry-Moist	Dry-Moist	Moist
Peak stress kPa	UTP	UTP	UTP	UTP	UTP
Remoulded stress kPa	-	-	-	-	-



Test Methods	Notes
Compaction NZS 4402 : 1986 Test 4.1.2 (Heavy)	All information supplied by Client
Shear Strength using a Hand Held Shear Vane, NZ Geotechnical Soc Inc 8/2001	

Date tested : 19-21/11/25
 Date reported : 21/11/25

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

Designation : Laboratory Manager
 Date : 10/12/25



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

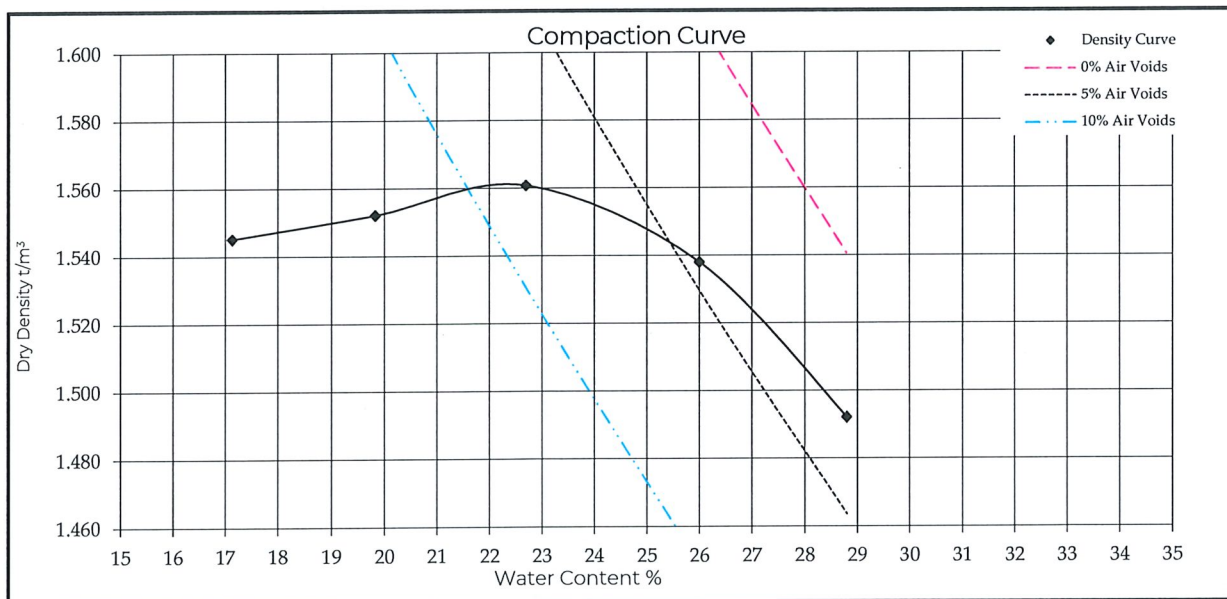
DRY DENSITY / WATER CONTENT RELATIONSHIP
HEAVY COMPACTION



Project : Ground Investigation for Northland Corridor
Location : Alternative to Brynderwyn Hills section: A new route close to SH1
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : 27/09/25
Sampling method : Digger
Sample description : Refer to TP2B_1104 log report
Sample condition : Natural; as excavated
Solid density : 2.77 t/m³ (Tested)
Source : TP2B_1104
Depth of sample : 2.00-3.00 m

Project No : 1-C2466.16
Lab Ref No : WL4709/11-MDD
Client Ref No : -

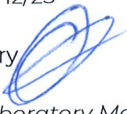
Test Results						
Maximum dry density	1.56	t/m ³	Natural water content	46.1	%	
Optimum water content	23	%	Fraction tested	Passing 19mm		
Sample ID	-20%	-18%	-16%	-14%	-12%	
Bulk density t/m ³	1.810	1.860	1.915	1.938	1.922	
Water content %	17.1	19.8	22.7	26.0	28.8	
Dry density t/m ³	1.545	1.552	1.561	1.538	1.492	
Sample condition	Dry	Dry	Dry	Dry-Moist	Dry-Moist	
Peak stress kPa	UTP	UTP	UTP	UTP	UTP	
Remoulded stress kPa	-	-	-	-	-	



Test Methods	Notes
Compaction NZS 4402 : 1986 Test 4.1.2 (Heavy)	All information supplied by Client
Shear Strength using a Hand Held Shear Vane, NZ Geotechnical Soc Inc 8/2001	

Date tested : 21/11-02/12/25
Date reported : 03/12/25

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.
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Approved Signatory 
Designation : Laboratory Manager
Date : 10/12/25



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

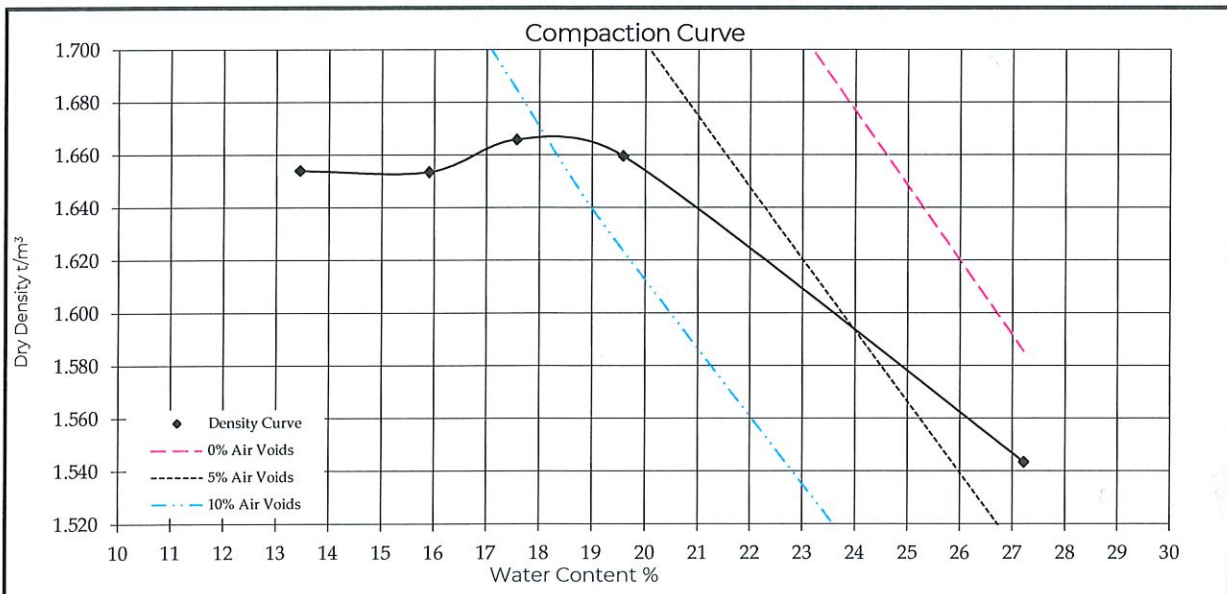
DRY DENSITY / WATER CONTENT RELATIONSHIP
HEAVY COMPACTION



Project : Ground Investigation for Northland Corridor
Location : Alternative to Brynderwyn Hills section: A new route close to SH1
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : 27/09/25
Sampling method : Digger
Sample description : Refer to TP2B_1107 log report
Sample condition : Natural; as excavated
Solid density : 2.79 t/m³ (Tested)
Source : TP2B_1107
Depth of sample : 4.50-5.00 m

Project No : 1-C2466.16
Lab Ref No : WL4709/12-MDD
Client Ref No : -

Test Results					
Maximum dry density	1.67	t/m ³	Natural water content	27.2	%
Optimum water content	18	%	Fraction tested	Passing 19mm	
Sample ID	-10.5%	-9%	-7.5%	-6%	Nat
Bulk density t/m ³	1.877	1.917	1.959	1.985	1.964
Water content %	13.5	15.9	17.6	19.6	27.2
Dry density t/m ³	1.654	1.654	1.666	1.660	1.543
Sample condition	Dry	Dry	Dry-Moist	Moist-Dry	Moist
Peak stress kPa	UTP	UTP	UTP	UTP	UTP
Remoulded stress kPa	-	-	-	-	-



Test Methods	Notes
Compaction NZS 4402 : 1986 Test 4.1.2 (Heavy)	All information supplied by Client
Shear Strength using a Hand Held Shear Vane, NZ Geotechnical Soc Inc 8/2001	

Date tested : 15/10-10/11/25
Date reported : 11/11/25

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

Designation : Laboratory Manager
Date : 14/11/25



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

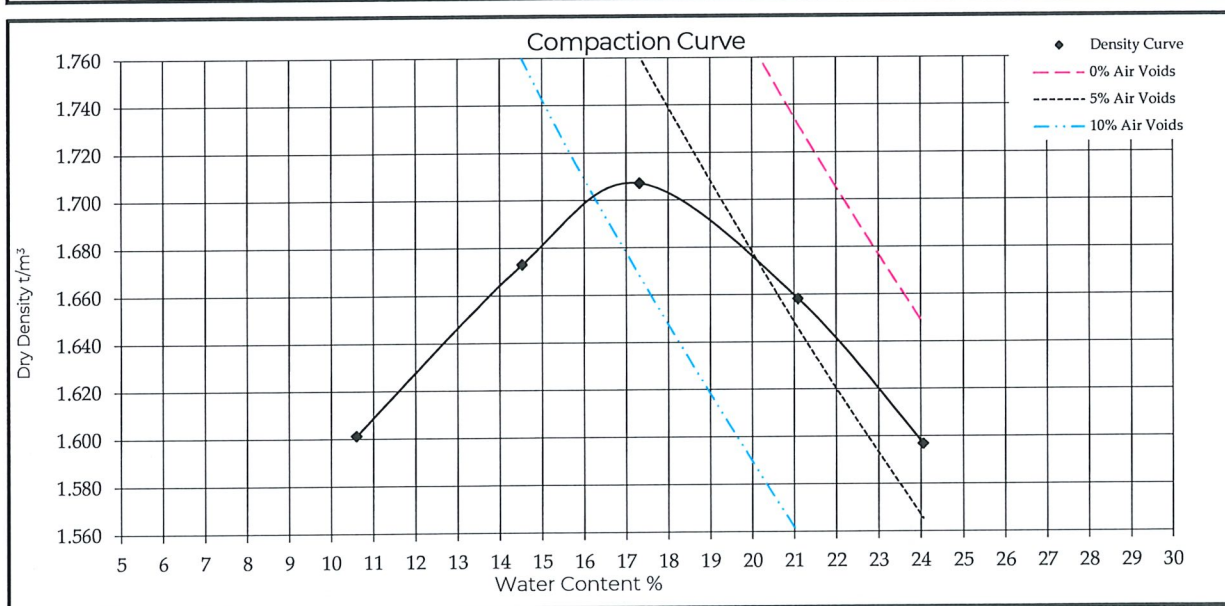
DRY DENSITY / WATER CONTENT RELATIONSHIP
HEAVY COMPACTION



Project : Ground Investigation for Northland Corridor
Location : Alternative to Brynderwyn Hills section: A new route close to SH1
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : 27/09/25
Sampling method : Digger
Sample description : Refer to TP2B_1108 log report
Sample condition : Natural; as excavated
Solid density : 2.73 t/m³ (Tested)
Source : TP2B_1108
Depth of sample : 0.50-1.00 m

Project No : 1-C2466.16
Lab Ref No : WL4709/26-MDD
Client Ref No : -

Test Results					
Maximum dry density	1.71	t/m ³	Natural water content	42.1	%
Optimum water content	17	%	Fraction tested	Passing 19mm	
Sample ID	-19%	-16%	-13%	-11%	-8.5%
Bulk density t/m ³	1.771	1.916	2.003	2.008	1.981
Water content %	10.6	14.5	17.3	21.1	24.1
Dry density t/m ³	1.601	1.673	1.707	1.658	1.597
Sample condition	Dry	Dry-Moist	Dry-Moist	Moist	Moist
Peak stress kPa	UTP	UTP	UTP	UTP	UTP
Remoulded stress kPa	-	-	-	-	-



Test Methods	Notes
Compaction NZS 4402 : 1986 Test 4.1.2 (Heavy)	All information supplied by Client
Shear Strength using a Hand Held Shear Vane, NZ Geotechnical Soc Inc 8/2001	

Date tested : 04/12/25
Date reported : 09/12/25

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

Designation : Laboratory Manager
Date : 10/12/25



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

WHG-NLC10 (10/25)

Page 1 of 1

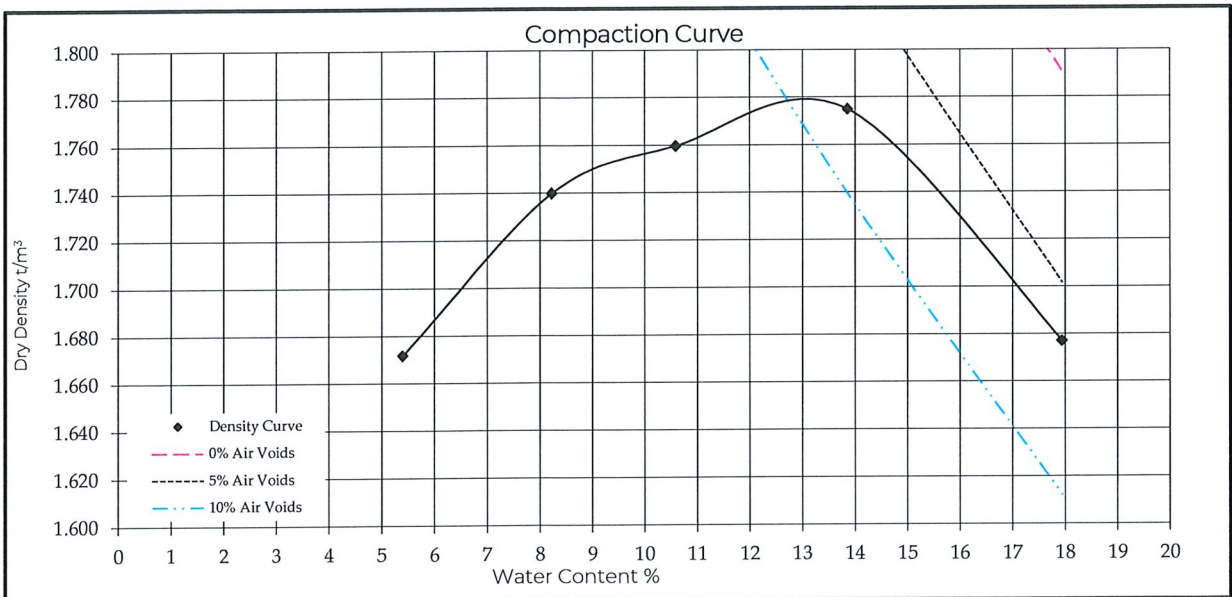
DRY DENSITY / WATER CONTENT RELATIONSHIP
HEAVY COMPACTION



Project : Ground Investigation for Northland Corridor
Location : Alternative to Brynderwyn Hills section: A new route close to SH1
Client : NZTA C/- Aurecon & WSP NZ Ltd
Contractor : -
Sampled by : NC Site Team
Date sampled : 27/09/25
Sampling method : Digger
Sample description : Refer to TP2B_1108 log report
Sample condition : Natural; as excavated
Solid density : 2.64 t/m³ (Tested)
Source : TP2B_1108
Depth of sample : 1.50-1.80 m

Project No : 1-C2466.16
Lab Ref No : WL4709/14-MDD
Client Ref No : -

Test Results					
Maximum dry density	1.77	t/m ³	Natural water content	19.6	%
Optimum water content	13	%	Fraction tested	Passing 19mm	
Sample ID	-12%	-10%	-8%	-6%	-2%
Bulk density t/m ³	1.762	1.883	1.946	2.021	1.978
Water content %	5.4	8.2	10.6	13.9	17.9
Dry density t/m ³	1.672	1.740	1.760	1.775	1.677
Sample condition	Dry	Dry	Moist-Wet	Moist-Wet	Wet
Peak stress kPa	UTP	UTP	UTP	UTP	71
Remoulded stress kPa	-	-	-	-	9



Test Methods	Notes
Compaction NZS 4402 : 1986 Test 4.1.2 (Heavy)	All information supplied by Client
Shear Strength using a Hand Held Shear Vane, NZ Geotechnical Soc Inc 8/2001	

Date tested : 13/11-08/12/25
Date reported : 09/12/25

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Approved Signatory

Designation : Laboratory Manager
Date : 10/12/25



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

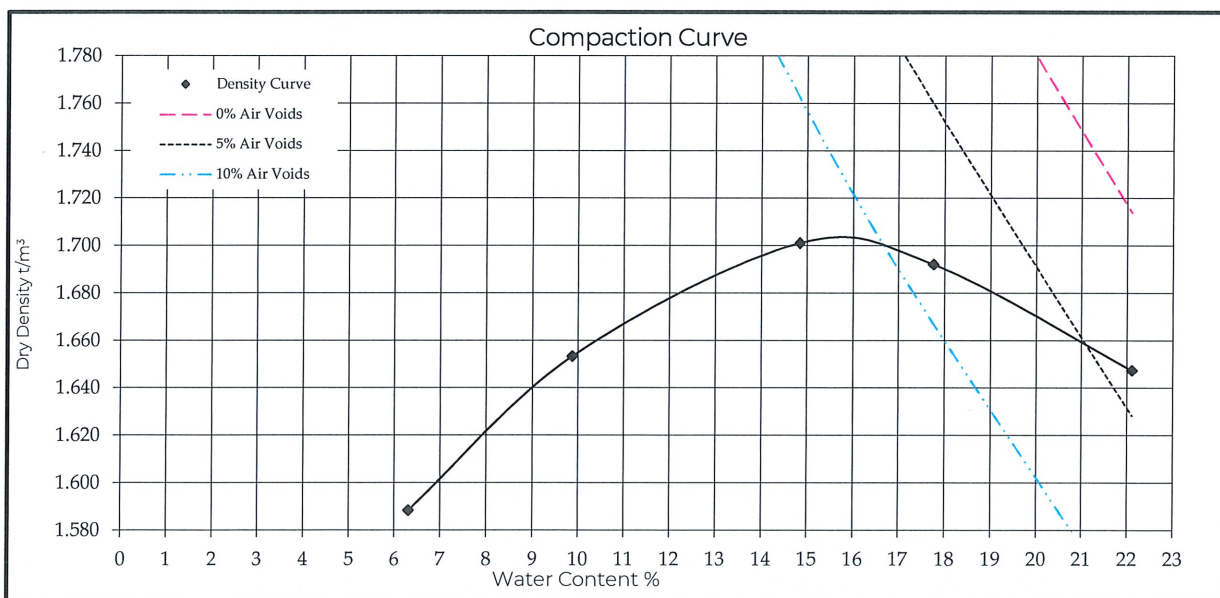
DRY DENSITY / WATER CONTENT RELATIONSHIP
HEAVY COMPACTION



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
Contractor : -
Sampled by : NC Site Team
Date sampled : 18/09/25
Sampling method : Digger
Sample description : Refer to TP2B_1109 log report
Sample condition : Natural; as excavated
Solid density : 2.76 t/m³ (Tested)
Source : TP2B_1109
Depth of sample : 3.50-4.00 m

Project No : 1-C2466.16
Lab Ref No : WL4709/15-MDD
Client Ref No : -

Test Results					
Maximum dry density	1.70	t/m ³	Natural water content	40.1	%
Optimum water content	16	%	Fraction tested	Passing 19mm	
Sample ID	-35%	-30%	-25%	-22%	-18%
Bulk density t/m ³	1.689	1.817	1.954	1.993	2.012
Water content %	6.3	9.9	14.8	17.8	22.1
Dry density t/m ³	1.588	1.653	1.701	1.692	1.647
Sample condition	Dry	Dry	Dry	Dry-Moist	Moist-Dry
Peak stress kPa	UTP	UTP	UTP	UTP	UTP
Remoulded stress kPa	-	-	-	-	-



Test Methods	Notes
Compaction NZS 4402 : 1986 Test 4.1.2 (Heavy)	All information supplied by Client
Shear Strength using a Hand Held Shear Vane, NZ Geotechnical Soc Inc 8/2001	

Date tested : 14-16/10/25
Date reported : 17/10/25

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Approved Signatory

Designation : Laboratory Manager
Date : 21/10/25



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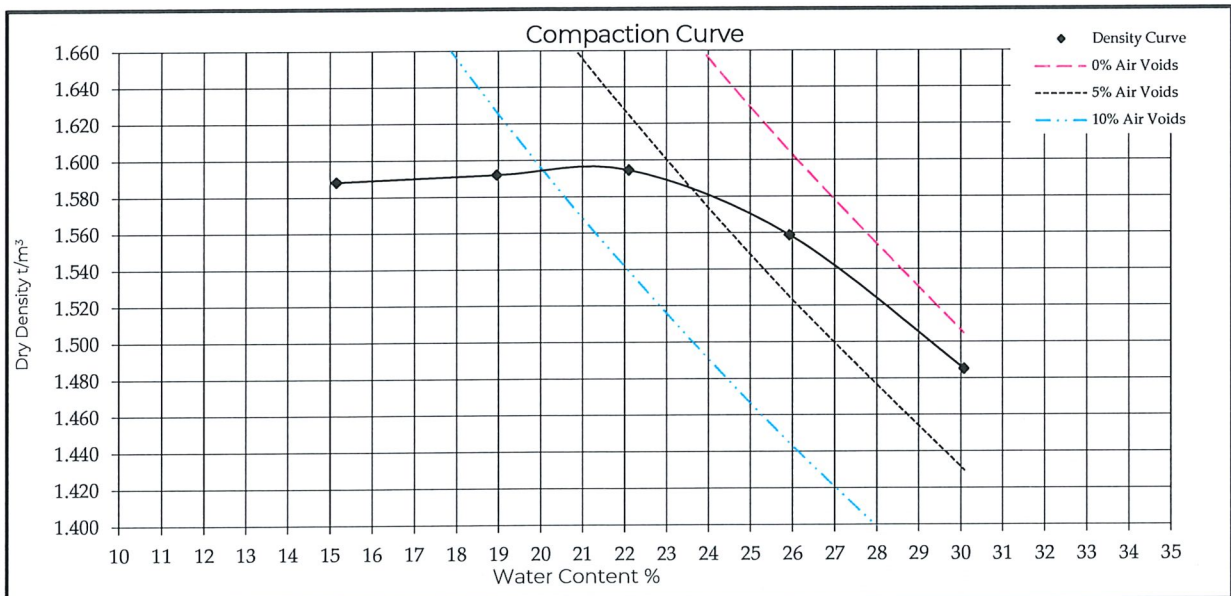
**DRY DENSITY / WATER CONTENT RELATIONSHIP
HEAVY COMPACTION**



Project : Ground Investigation for Northland Corridor
 Location : Alternative to Brynderwyn Hills section: A new route close to SH1
 Client : NZTA C/- Aurecon & WSP NZ Ltd
 Contractor : -
 Sampled by : NC Site Team
 Date sampled : 27/09/25
 Sampling method : Digger
 Sample description : Refer to TP2B_1110 log report
 Sample condition : Natural; as excavated
 Solid density : 2.75 t/m³ (Tested)
 Source : TP2B_1110
 Depth of sample : 1.50-2.00 m

Project No : 1-C2466.16
 Lab Ref No : WL4709/17-MDD
 Client Ref No : -

Test Results					
Maximum dry density	1.59	t/m ³	Natural water content	38.0	%
Optimum water content	22	%	Fraction tested	Passing 19mm	
Sample ID	-17.5%	-15%	-12.5%	-10%	-7.5%
Bulk density t/m ³	1.829	1.894	1.947	1.963	1.932
Water content %	15.2	19.0	22.1	25.9	30.1
Dry density t/m ³	1.588	1.592	1.595	1.559	1.485
Sample condition	Dry	Dry	Dry-Moist	Dry-Moist	Moist
Peak stress kPa	UTP	UTP	UTP	UTP	UTP
Remoulded stress kPa	-	-	-	-	-



Test Methods	Notes
Compaction NZS 4402 : 1986 Test 4.1.2 (Heavy)	All information supplied by Client
Shear Strength using a Hand Held Shear Vane, NZ Geotechnical Soc Inc 8/2001	

Date tested : 21/11-02/12/25
 Date reported : 24/11/25

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Approved Signatory

Designation : Laboratory Manager
 Date : 10/12/25



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

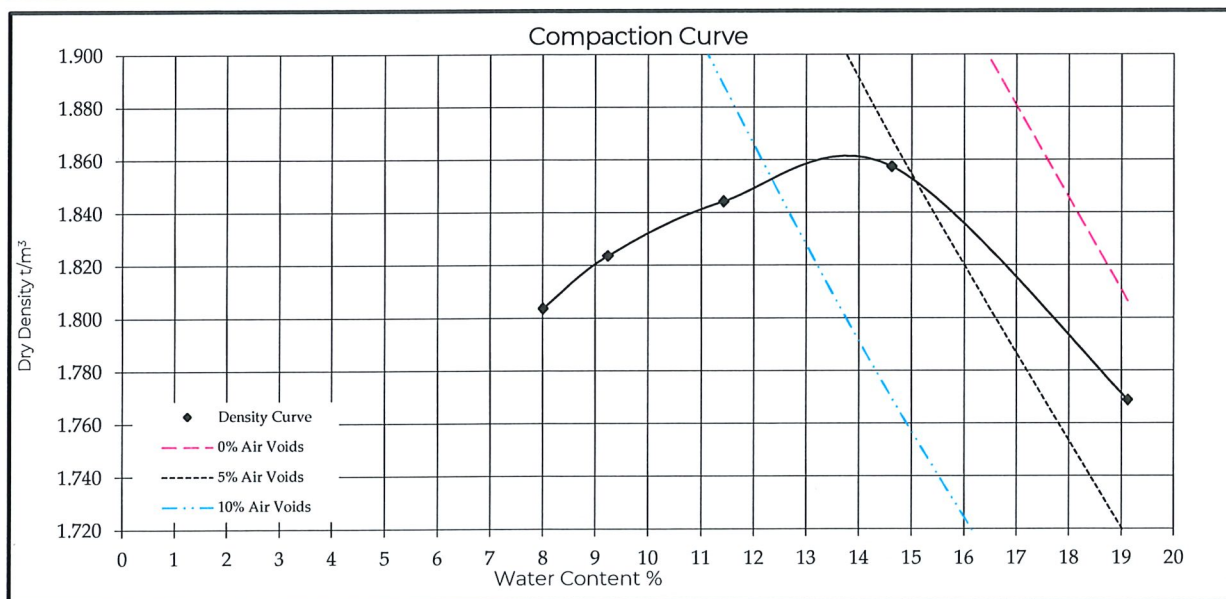
**DRY DENSITY / WATER CONTENT RELATIONSHIP
HEAVY COMPACTION**



Project : Ground Investigation for Northland Corridor
 Location : Alternative to Brynderwyn Hills section: A new route close to SH1
 Client : NZTA C/- Aurecon & WSP NZ Ltd
 Contractor : -
 Sampled by : NC Site Team
 Date sampled : 27/09/25
 Sampling method : Digger
 Sample description : Refer to TP2B_1110 log report
 Sample condition : Natural; as excavated
 Solid density : 2.76 t/m³ (Tested)
 Source : TP2B_1110
 Depth of sample : 2.00-2.50 m

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

Test Results					
Maximum dry density	1.86	t/m ³	Natural water content	19.1	%
Optimum water content	14	%	Fraction tested	Passing 19mm	
Sample ID	-9.5%	-8%	-6%	-4%	Nat
Bulk density t/m ³	1.948	1.992	2.055	2.129	2.107
Water content %	8.0	9.2	11.4	14.6	19.1
Dry density t/m ³	1.804	1.824	1.844	1.857	1.769
Sample condition	Dry	Dry	Dry-Moist	Dry-Moist	Moist
Peak stress kPa	UTP	UTP	UTP	UTP	UTP
Remoulded stress kPa	-	-	-	-	-



Test Methods	Notes
Compaction NZS 4402 : 1986 Test 4.1.2 (Heavy)	All information supplied by Client
Shear Strength using a Hand Held Shear Vane, NZ Geotechnical Soc Inc 8/2001	

Date tested : 18/11/25
 Date reported : 20/11/25

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Approved Signatory

Designation : Laboratory Manager
 Date : 09/12/25



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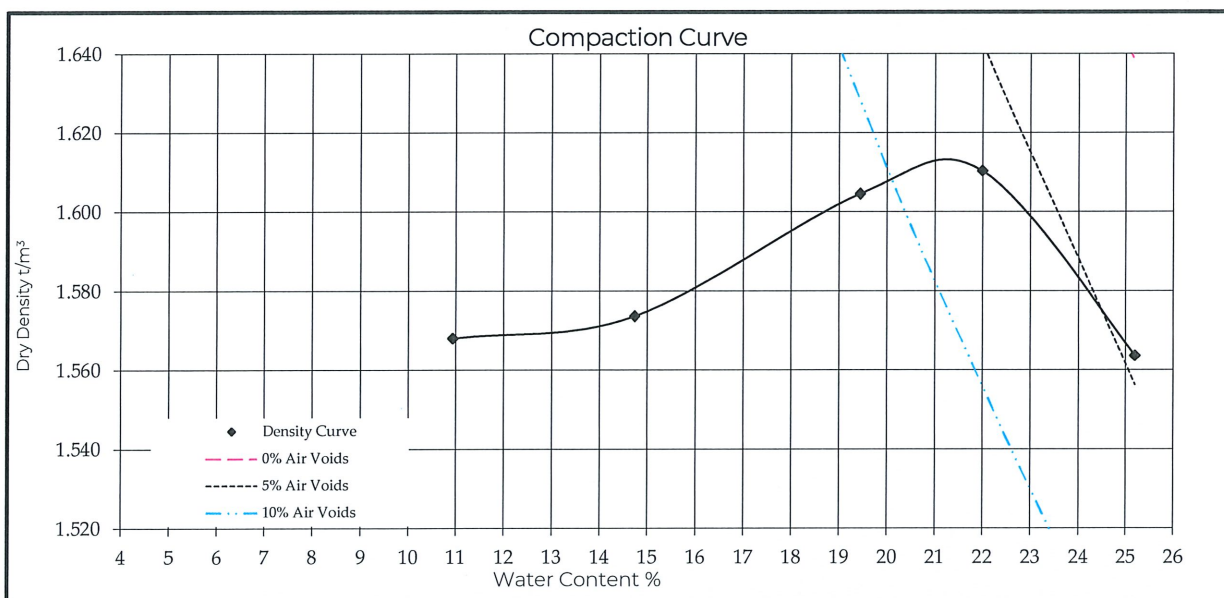
DRY DENSITY / WATER CONTENT RELATIONSHIP
HEAVY COMPACTION



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
Contractor : -
Sampled by : NC Site Team
Date sampled : 18/09/25
Sampling method : Digger
Sample description : Refer to TP2B_1113 log report
Sample condition : Natural; as excavated
Solid density : 2.79 t/m³ (Tested)
Source : TP2B_1113
Depth of sample : 4.20-4.50 m

Project No : 1-C2466.16
Lab Ref No : WL4709/18-MDD
Client Ref No : -

Test Results						
Maximum dry density	1.61	t/m ³	Natural water content	42.4	%	
Optimum water content	21	%	Fraction tested	Passing 19mm		
Sample ID	-29%	-26%	-23%	-20%	-17%	
Bulk density t/m ³	1.740	1.806	1.917	1.965	1.958	
Water content %	10.9	14.7	19.4	22.0	25.2	
Dry density t/m ³	1.568	1.574	1.605	1.610	1.564	
Sample condition	Dry	Dry	Dry	Dry-Moist	Moist-Dry	
Peak stress kPa	UTP	UTP	UTP	UTP	UTP	
Remoulded stress kPa	-	-	-	-	-	



Test Methods	Notes
Compaction NZS 4402 : 1986 Test 4.1.2 (Heavy)	All information supplied by Client
Shear Strength using a Hand Held Shear Vane, NZ Geotechnical Soc Inc 8/2001	

Date tested : 13-15/10/25
Date reported : 17/10/25

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

Designation : Laboratory Manager
Date : 21/10/25



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

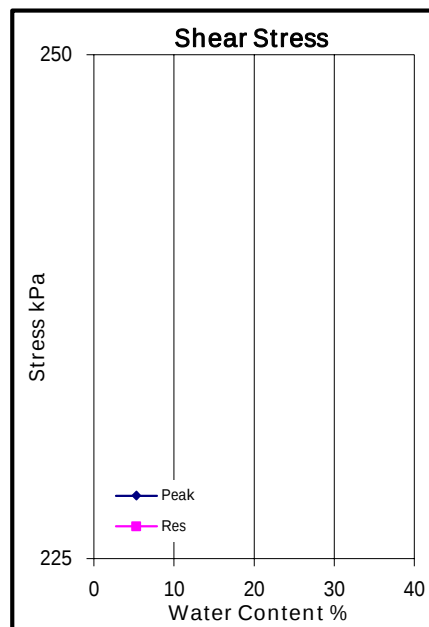
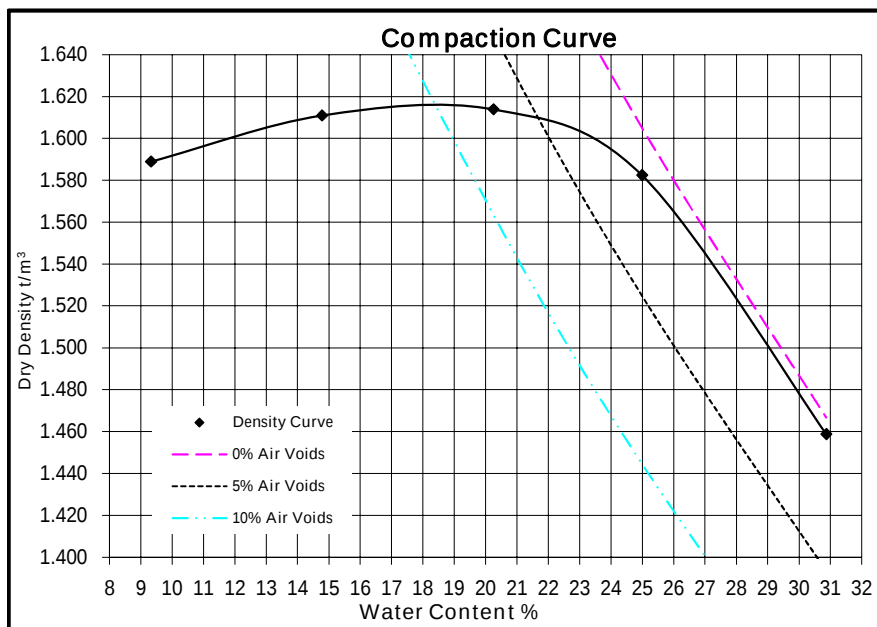
DRY DENSITY / WATER CONTENT RELATIONSHIP HEAVY COMPACTION



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.
Contractor : N/A
Sampled by : NC_Site team
Date sampled : 15/09/25
Sampling method : Digger
Sample description : Refer to TP4000 log report
Sample condition : Natural; as excavated
Solid density : 2.68 t/m³ (Assumed)
Source : TP4000
Depth of sample : TB2B_1114 (1.00m-1.90m)

Project No : 1-C21466.16
Lab Ref No : WL4709/1_MDD
Client Ref No : 1-C21466.16

Test Results					
Maximum dry density	1.61	t/m ³	Natural water content	30.9	%
Optimum water content	19	%	Fraction tested	Passing 19 m m	
Sample ID	A	B	C	D	Nat
Bulk density t/m ³	1.737	1.849	1.941	1.978	1.909
Water content %	9.3	14.8	20.2	25.0	30.9
Dry density t/m ³	1.589	1.611	1.614	1.582	1.459
Sample condition	Dry	Dry	Dry	Dry	Moist-Dry
Peak stress kPa	UTP	UTP	UTP	UTP	UTP
Remoulded stress kPa	-	-	-	-	-



Test Methods	Notes
Compaction NZS 4402 : 1986 Test 4.1.2 (Heavy)	All information supplied by Client
Shear Strength using a Hand Held Shear Vane, NZ Geotechnical Soc Inc 8/2001	

Date tested : 30/10/25
Date reported : 25/11/25

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

Richard Low

Designation : Senior Civil Engineering Technician
Date : 25/11/25



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

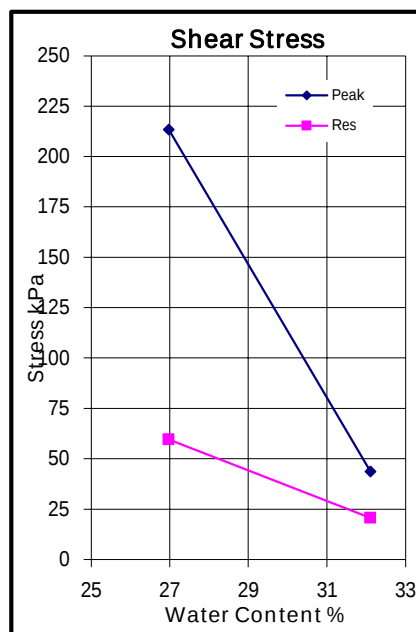
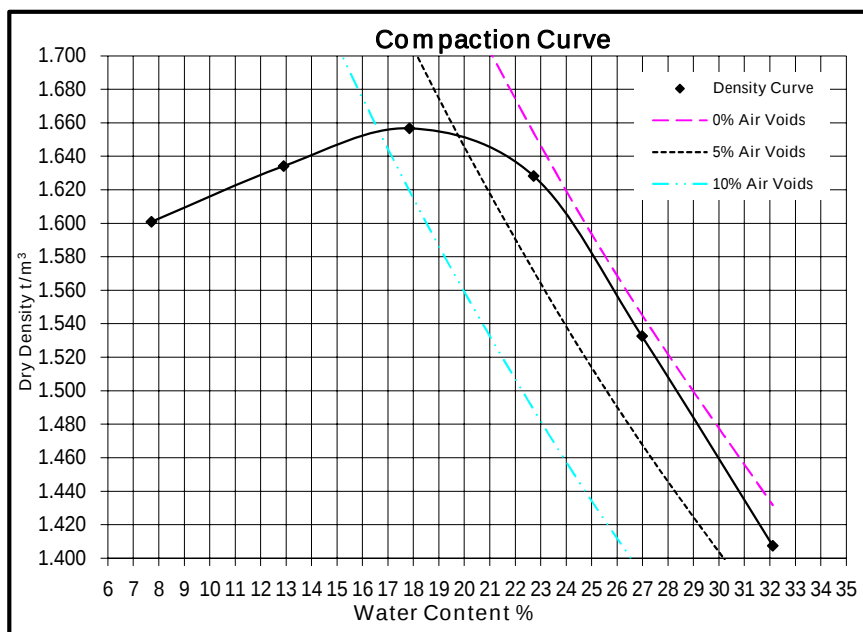
DRY DENSITY / WATER CONTENT RELATIONSHIP HEAVY COMPACTION



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.
 Contractor : N/A
 Sampled by : NC_Site team
 Date sampled : 15/09/25
 Sampling method : Not Stated
 Sample description : Light Brown with mottled orange; Silty CLAY with trace of rootlets; Moist to wet
 Sample condition : As Received
 Solid density : 2.65 t/m³ (Assumed)
 Source : TB2B_1114 (1.90m-2.60m)

Project No : 1-C21466.16
 Lab Ref No : WL47019/2
 Client Ref No : 1-C21466.16

Test Results							
Maximum dry density	1.66	t/m ³	Natural water content		27.0	%	
Optimum water content	18	%	Fraction tested		Passing 19.0 m m test sieve		
Sample ID	A	B	C	D	Nat	E	
Bulk density t/m ³	1.724	1.845	1.952	1.998	1.946	1.859	
Water content %	7.7	12.9	17.8	22.7	27.0	32.1	
Dry density t/m ³	1.601	1.634	1.657	1.628	1.533	1.408	
Sample condition	Dry	Dry	Dry	Dry-Moist	Moist Wet	Saturated	
Peak stress kPa	UTP	UTP	UTP	UTP	213	44	
Remoulded stress kPa	-	-	-	-	60	21	



Test Methods	Notes
Compaction NZS 4402 : 1986 Test 4.1.2 (Heavy)	All information supplied by Client
Shear Strength using a Hand Held Shear Vane, NZ Geotechnical Soc Inc 8/2001	

Date tested : 05/10/25
 Date reported : 07/10/25
 Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.
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Approved Signatory
 Richard Low
 Designation : Senior Civil Engineering Technician
 Date : 08/10/25



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

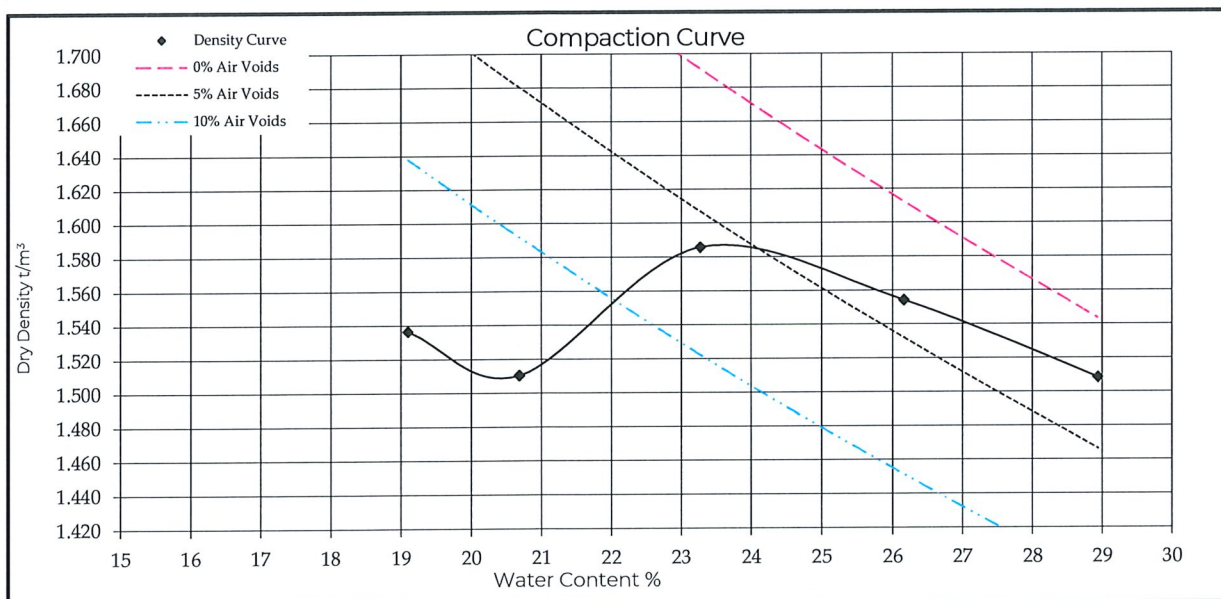
**DRY DENSITY / WATER CONTENT RELATIONSHIP
HEAVY COMPACTION**



Project : Ground Investigation for Northland Corridor
 Location : Alternative to Brynderwyn Hills section: A new route close to SH1
 Client : NZTA C/- Aurecon & WSP NZ Ltd
 Contractor : -
 Sampled by : NC Site Team
 Date sampled : 25/09/25
 Sampling method : Digger
 Sample description : Refer to TP2B_1120 log report
 Sample condition : Natural; as excavated
 Solid density : 2.79 t/m³ (Tested)
 Source : TP2B_1120
 Depth of sample : 2.70-3.20 m

Project No : 1-C2466.16
 Lab Ref No : WL4709/22-MDD
 Client Ref No : -

Test Results					
Maximum dry density	1.59	t/m ³	Natural water content	47.1	%
Optimum water content	24	%	Fraction tested	Passing 19mm	
Sample ID	-20.5%	-16.5%	-14.5%	-12.5%	-10.5%
Bulk density t/m ³	1.830	1.823	1.955	1.961	1.945
Water content %	19.1	20.7	23.3	26.2	28.9
Dry density t/m ³	1.537	1.511	1.586	1.554	1.508
Sample condition	Dry	Dry	Dry-Moist	Dry-Moist	Moist
Peak stress kPa	UTP	UTP	UTP	UTP	UTP
Remoulded stress kPa	-	-	-	-	-



Test Methods	Notes
Compaction NZS 4402 : 1986 Test 4.1.2 (Heavy)	All information supplied by Client
Shear Strength using a Hand Held Shear Vane, NZ Geotechnical Soc Inc 8/2001	

Date tested : 20/11-02/12/25
 Date reported : 03/12/25

Sampling is not covered by IANZ Accreditation. Results apply only to sample tested.
 This report may only be reproduced in full

Approved Signatory

Designation : Laboratory Manager
 Date : 10/12/25



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

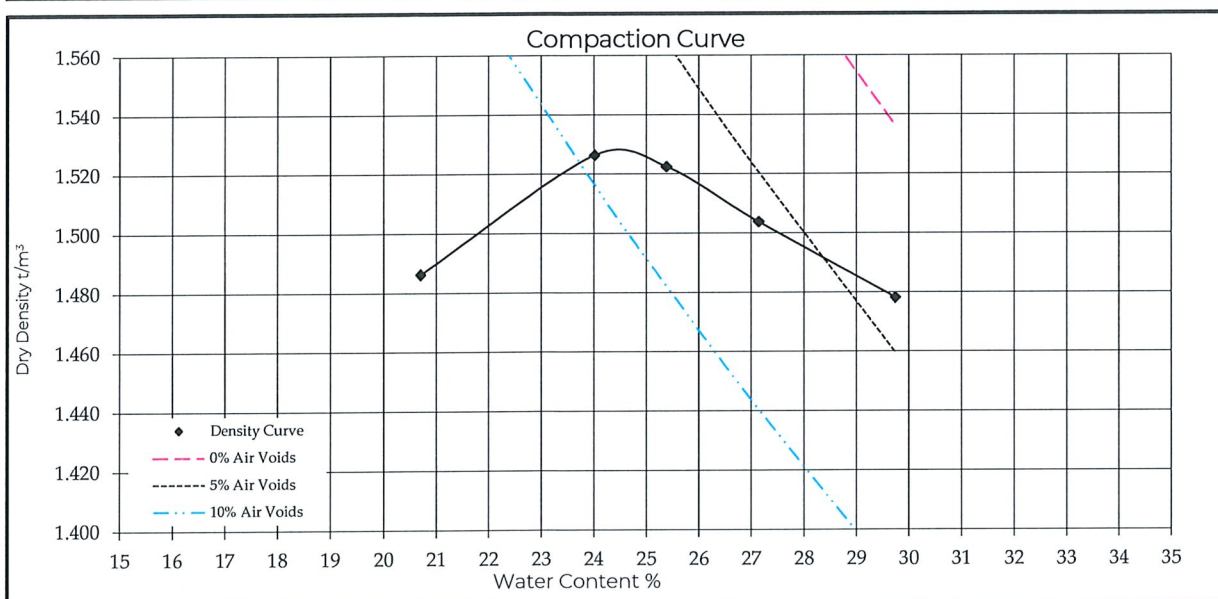
**DRY DENSITY / WATER CONTENT RELATIONSHIP
HEAVY COMPACTION**



Project : Ground Investigation for Northland Corridor
 Location : Alternative to Brynderwyn Hills section: A new route close to SH1
 Client : NZTA C/- Aurecon & WSP NZ Ltd
 Contractor : -
 Sampled by : NC Site Team
 Date sampled : 25/09/25
 Sampling method : Digger
 Sample description : Refer to TP2B_1120 log report
 Sample condition : Natural; as excavated
 Solid density : 2.83 t/m³ (Tested)
 Source : TP2B_1120
 Depth of sample : 4.50-5.00 m

Project No : 1-C2466.16
 Lab Ref No : WL4709/23-MDD
 Client Ref No : -

Test Results					
Maximum dry density	1.53	t/m ³	Natural water content	44.0	%
Optimum water content	25	%	Fraction tested	Passing 19mm	
Sample ID	-15.5%	-13.5%	-12.5%	-11.5%	-9.5%
Bulk density t/m ³	1.794	1.893	1.909	1.912	1.918
Water content %	20.7	24.0	25.4	27.1	29.8
Dry density t/m ³	1.486	1.526	1.522	1.504	1.478
Sample condition	Dry	Dry	Dry-Moist	Moist-Dry	Moist
Peak stress kPa	UTP	UTP	UTP	UTP	UTP
Remoulded stress kPa	-	-	-	-	-



Test Methods	Notes
Compaction NZS 4402 : 1986 Test 4.1.2 (Heavy)	All information supplied by Client
Shear Strength using a Hand Held Shear Vane, NZ Geotechnical Soc Inc 8/2001	

Date tested : 21/11-01/12/25
 Date reported : 09/12/25

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

Designation : *Laboratory Manager*
 Date : 10/12/25



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

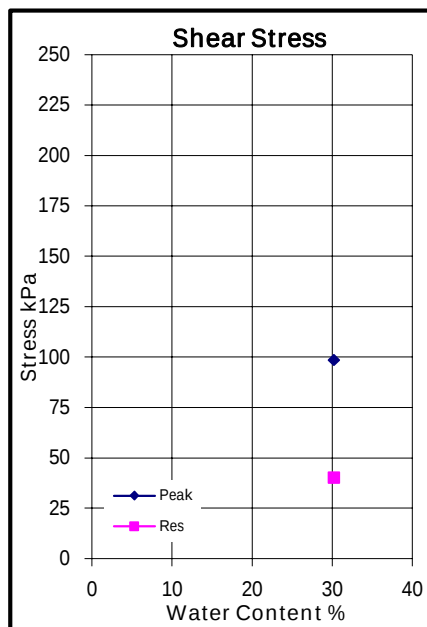
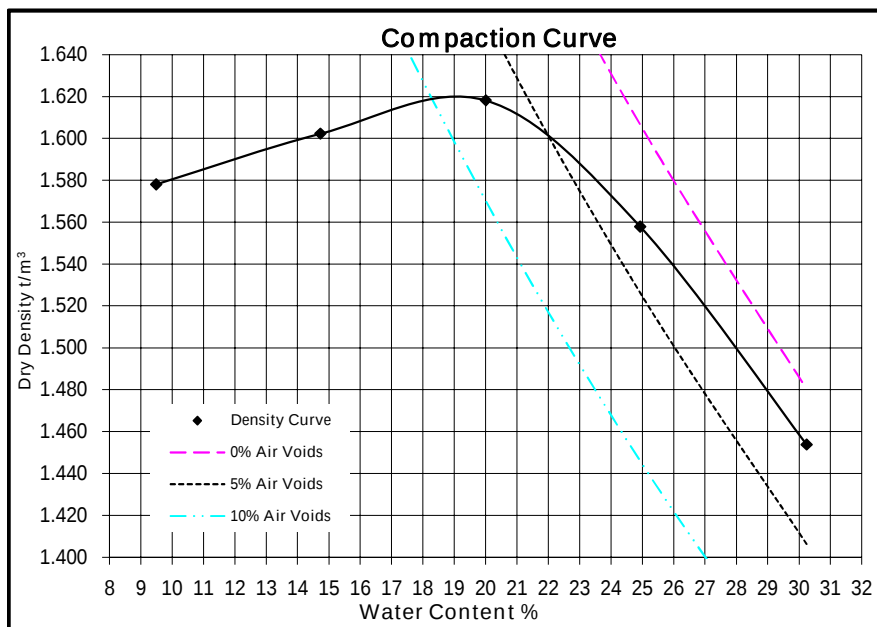
DRY DENSITY / WATER CONTENT RELATIONSHIP HEAVY COMPACTION



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.
 Contractor : N/A
 Sampled by : NC_Site team
 Date sampled : 15/09/25
 Sampling method : Digger
 Sample description : Refer to TP4000 log report
 Sample condition : Natural; as excavated
 Solid density : 2.68 t/m³ (Assumed)
 Source : TP4000
 Depth of sample : TB2B_1121 (0.50 m-1.90 m)

Project No : 1-C21466.16
 Lab Ref No : WL4709/3_MDD
 Client Ref No : 1-C21466.16

Test Results					
Maximum dry density	1.62	t/m ³	Natural water content	30.2	%
Optimum water content	20	%	Fraction tested	Passing 19m m	
Sample ID	A	B	C	D	Nat
Bulk density t/m ³	1.728	1.838	1.942	1.946	1.893
Water content %	9.5	14.7	20.0	24.9	30.2
Dry density t/m ³	1.578	1.602	1.618	1.558	1.454
Sample condition	Dry	Dry	Dry	Moist	Wet
Peak stress kPa	UTP	UTP	UTP	UTP	98
Remoulded stress kPa	-	-	-	-	40



Test Methods	Notes
Compaction NZS 4402 : 1986 Test 4.1.2 (Heavy)	All information supplied by Client
Shear Strength using a Hand Held Shear Vane, NZ Geotechnical Soc Inc 8/2001	

Date tested : 24/10/25
 Date reported : 25/11/25

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

Richard Low

Designation : Senior Civil Engineering Technician
 Date : 25/11/25



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

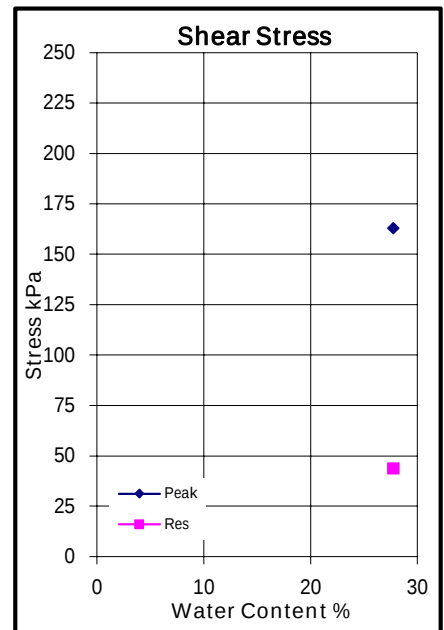
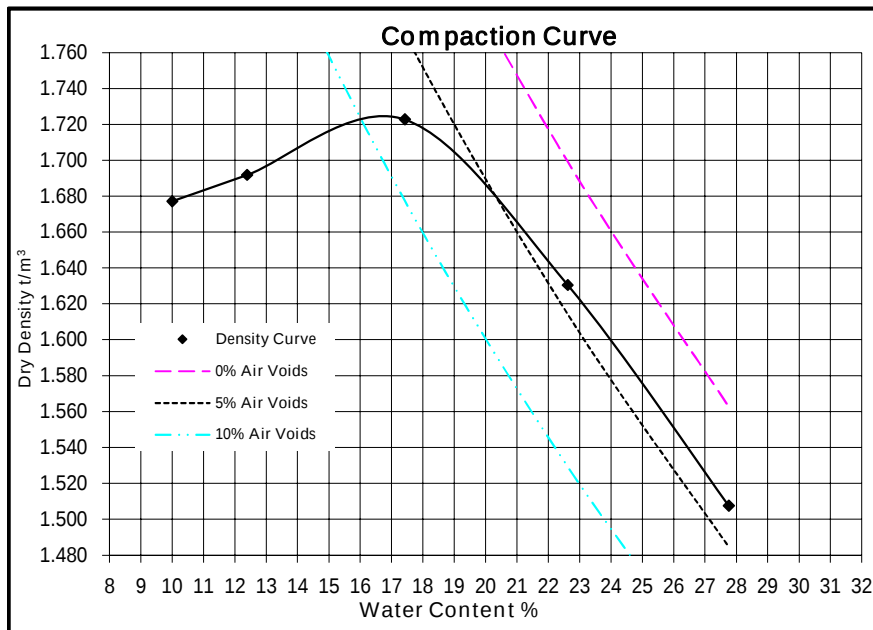
DRY DENSITY / WATER CONTENT RELATIONSHIP HEAVY COMPACTION



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.
 Contractor : N/A
 Sampled by : NC_Site team
 Date sampled : 15/09/25
 Sampling method : Digger
 Sample description : Refer to TP4000 log report
 Sample condition : Natural; as excavated
 Solid density : 2.76 t/m³ (Tested)
 Source : TP4000
 Depth of sample : TB2B_1121 (1.90 m -2.50 m)

Project No : 1-C21466.16
 Lab Ref No : WL4709/4_MDD
 Client Ref No : 1-C21466.16

Test Results					
Maximum dry density	1.72	t/m ³	Natural water content	27.8	%
Optimum water content	17	%	Fraction tested	Passing 19m m	
Sample ID	D	C	B	A	Nat
Bulk density t/m ³	1.845	1.901	2.023	1.999	1.926
Water content %	10.0	12.4	17.4	22.6	27.8
Dry density t/m ³	1.677	1.692	1.723	1.630	1.507
Sample condition	Moist-Dry	Moist	Moist	Wet-Moist	Wet
Peak stress kPa	UTP	UTP	UTP	UTP	163
Remoulded stress kPa	-	-	-	-	44



Test Methods	Notes
Compaction NZS 4402 : 1986 Test 4.1.2 (Heavy)	All information supplied by Client
Shear Strength using a Hand Held Shear Vane, NZ Geotechnical Soc Inc 8/2001	Refer to WL4709/4-SD for solid density test

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

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

Richard Low

Designation : Senior Civil Engineering Technician
 Date : 25/11/25



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