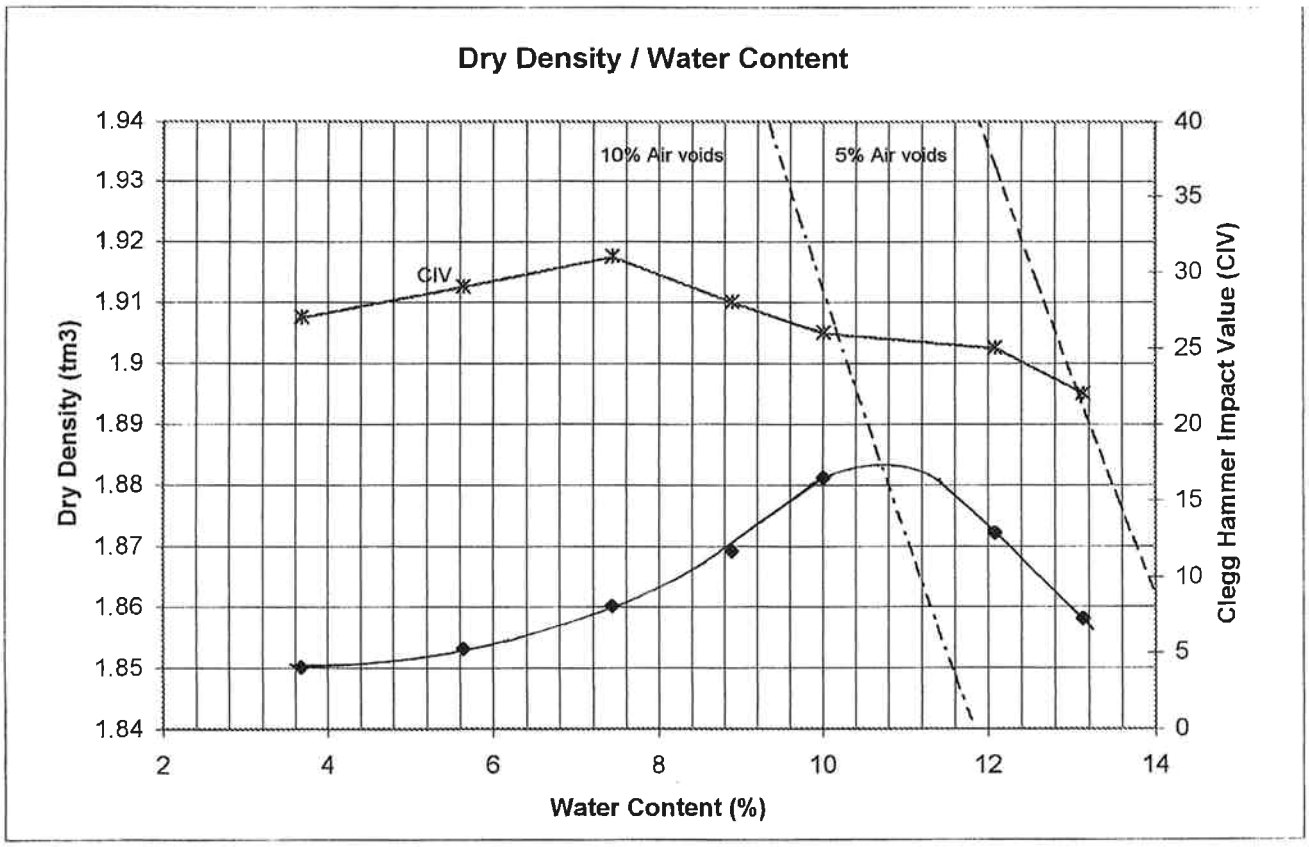
Appendix Laboratory test reports

Laboratory test reports for material sampled from Higgins Yard, carried out by Civil Lab:

Standard compaction
Particle size distribution
California Bearing Ratio test
Clay Index
Plasticity Index

DETERMINATION OF THE DRY DENSITY / WATER CONTENT RELATIONSHIP
NEW ZEALAND STANDARD COMPACTION
TEST METHOD NZS 4402 : 1986 TEST 4.1.1

Job:	**Transfund Asphalt Milling**		
Date of order:	20.01.05	Sample No.:	433 BF-A
Sample method:	NZS 4407 : 1991 : 2.4.6.2.1	Sample Origin :	Stockpile at Higgins yard
Sampled By :	GC	Sample Date :	15.02.05

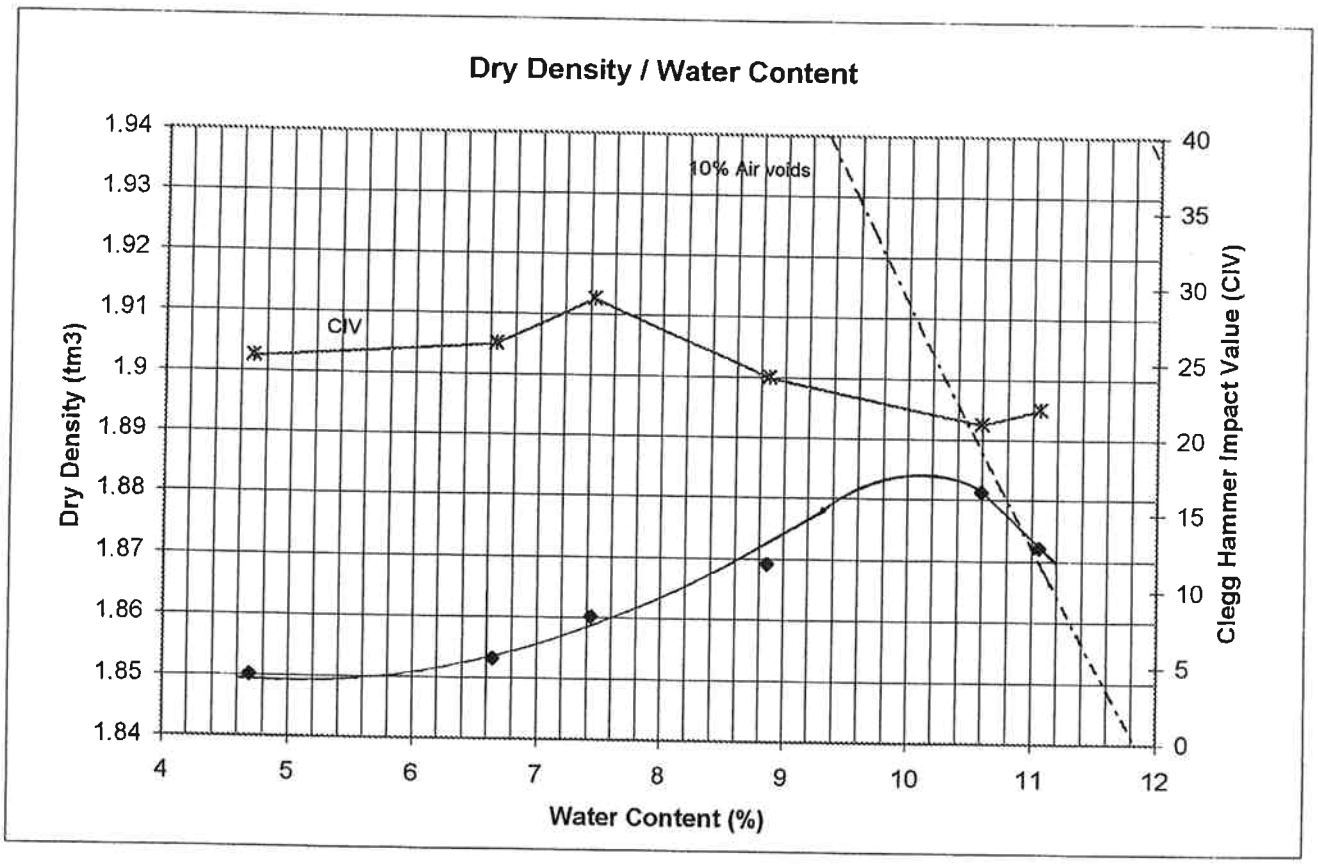


Maximum Dry Density :	**1.88**	t/m^3	Optimum Water Content :	**11**	%
Solid Density of Soil :	2.7	t/m^3	(Assumed)		
Description of Soil :	Rotomiliings				
Fraction of soil tested :	Passing 19mm sieve		History of sample :	Wet up	
Comments :	Clegg Hammer Impact Value testing was carried out in accordance with ASTM 1995 D5874				

Tested By:	RC	Date :	14 & 16.03.05
Calculated By :	RC	Date :	16 & 22.03.05
Checked By :	EZ	Date :	24.3.05
Approved Signatory :		Date :	24.3.05

DETERMINATION OF THE DRY DENSITY / WATER CONTENT RELATIONSHIP
NEW ZEALAND STANDARD COMPACTION
TEST METHOD NZS 4402 : 1986 TEST 4.1.1

Job:	**Transfund Asphalt Milling**		
Date of order:	20.01.05	Sample No.:	433 BF-B
Sample method:	NZS 4407 : 1991 : 2.4.6.2.1	Sample Origin :	Stockpile at Higgins yard
Sampled By :	GC	Sample Date :	15.02.05



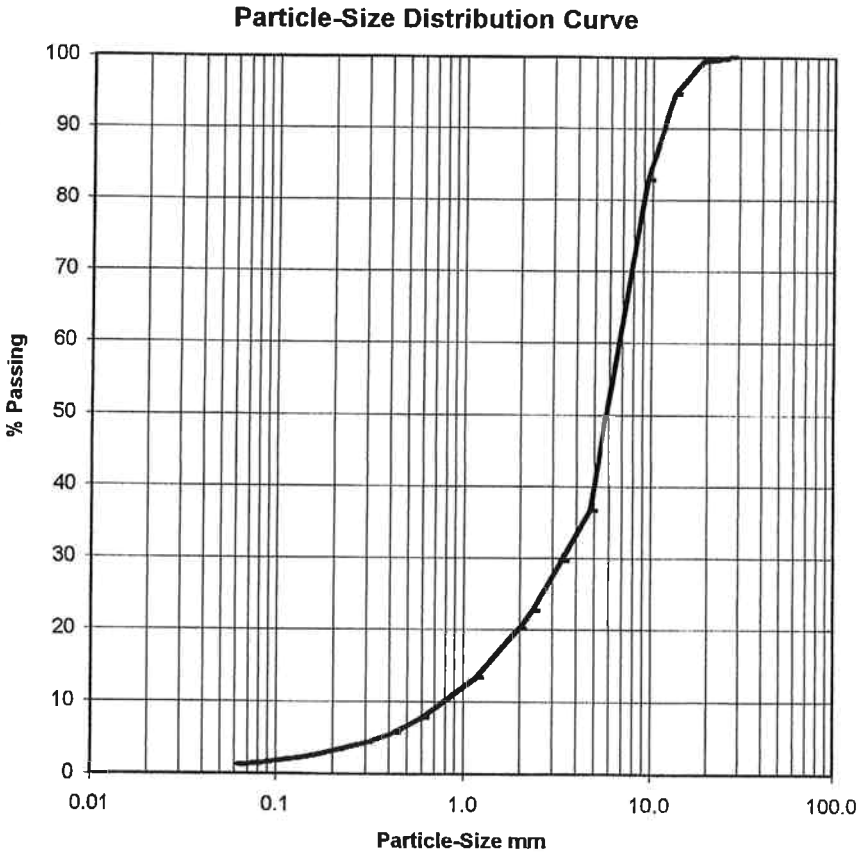
Maximum Dry Density :	**1.88**	t/m³	Optimum Water Content :	**10**	%
Solid Density of Soil :	2.7	t/m³	(Assumed)		
Description of Soil :	Rotomillings				
Fraction of soil tested :	Passing 19mm sieve		History of sample :	Wet up	
Comments :	Clegg Hammer Impact Value testing was carried out in accordance with ASTM 1995 D5874				

Tested By:	RC	Date :	16.03.05
Calculated By :	RC	Date :	21.03.05
Checked By :	[signature]	Date :	24-3-05
Approved Signatory :	[signature]	Date :	24-3-05

PARTICLE SIZE DISTRIBUTION
SUBSIDIARY METHOD BY DRY SIEVING
TEST METHOD NZS 4407 : 1991 TEST 3.8.2

Job :	**Transfund Asphalt Milling**		
Date of Order :	20.01.05	Sample No :	433 BF-A
Sample Description :	Rotomillings	Sample Origin :	Stockpile at Higgins yard
Sample Method :	NZS 4407 : 1991 : 2.4.6.2.1	Sample History :	Air dried
Sampled By :	GC	Sample Date :	15.02.05

Sieve (mm)	Test Result % Passing	Standard Spec. Lower	Standard Spec. Upper
26.5	100		
19.0	99		
13.2	95		
9.50	83		
4.75	37		
3.35	30		
2.36	23		
2.00	20		
1.18	13		
0.600	8		
0.425	6		
0.300	4		
0.212	3		
0.150	2		
0.090	2		
0.075	1		
0.063	1		



Percentage Loss : 0.3% obtained by weighing

Comments :

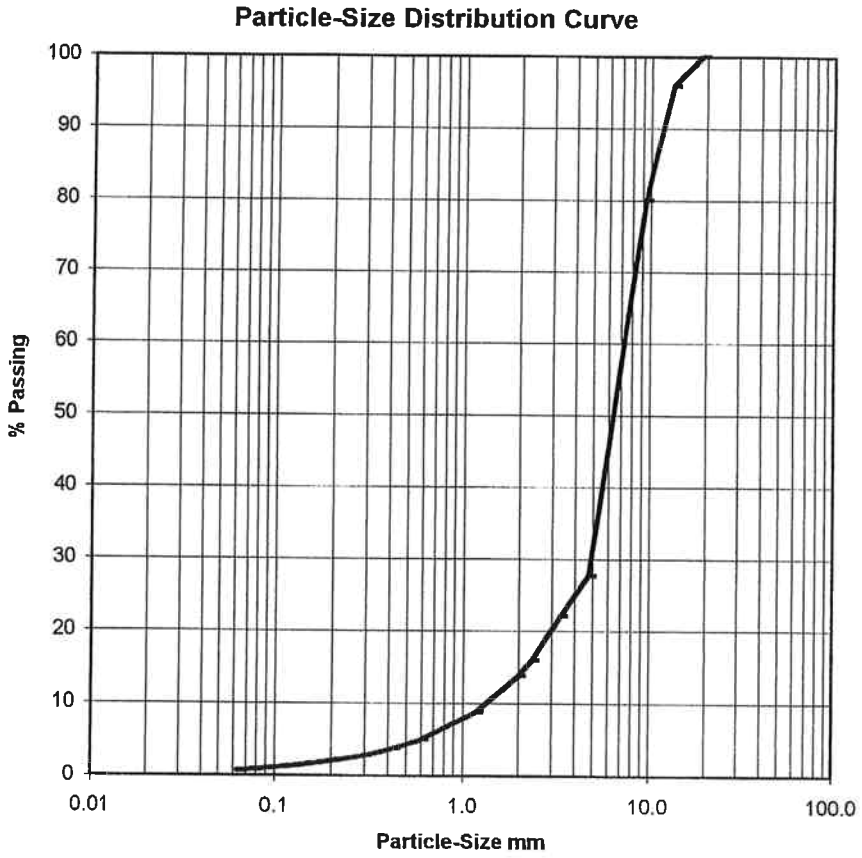
Results were obtained from an air dried test sample

Tested By :	JM	Date :	16.03.05
Calculated By :	JM	Date :	16.03.05
Checked By :	RC	Date :	22.3.05
Approved Signatory :		Date :	22.3.05

PARTICLE SIZE DISTRIBUTION
SUBSIDIARY METHOD BY DRY SIEVING
TEST METHOD NZS 4407 : 1991 TEST 3.8.2

Job :	**Transfund Asphalt Milling**		
Date of Order :	20.01.05	Sample No :	433 BF-B
Sample Description :	Rotomillings	Sample Origin :	Stockpile at Higgins yard
Sample Method :	NZS 4407 : 1991 : 2.4.6.2.1	Sample History :	Air dried
Sampled By :	GC	Sample Date :	15.02.05

Sieve (mm)	Test Result % Passing	Standard Spec. Lower	Standard Spec. Upper
19.0	100		
13.2	96		
9.50	80		
4.75	28		
3.35	22		
2.36	16		
2.00	14		
1.18	9		
0.600	5		
0.425	4		
0.300	3		
0.212	2		
0.150	2		
0.090	1		
0.075	1		
0.063	1		



Percentage Loss : 0.2% obtained by weighing

Comments :

Results were obtained from an air dried test sample

Tested By :	JM	Date :	16.03.05
Calculated By :	JM	Date :	16.03.05
Checked By :		Date :	24.3.05
Approved Signatory :		Date :	24.3.05

DETERMINATION OF THE PLASTICITY INDEX
TEST METHOD NZS 4402 : 1986 TEST 2.2, 2.3 & 2.4

Job: **Transfund Asphalt Milling**
Date of order: 20.01.05
Sample method: NZS 4407 : 1991 : 2.4.6.2.1
Sampled By: GC

Sample origin: Stockpile at Higgins yard
Sample Description: Rotomillings
Date: 15.02.05

Test Details :

Test performed on : fraction passing 0.425mm sieve
History : Natural

Sample No.	Location	Depth (m)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)
433 BF-A	Higgins Yard	-	NA	NP	NA	-
433 BF-B	Higgins Yard	-	NA	NP	NA	-

Comments :

Tested By: RC Date : 18.03.05
Calculated By : N/A Date : -
Checked By : RC Date : 24.3.05
Approved Signatory : Date : 24.3.05

THE CALIFORNIA BEARING RATIO TEST
TEST METHOD NZS 4407 : 1991 TEST 3.15

Job: **Transfund Asphalt Milling**
Date of Order: 20.01.05
Sample Method: NZS 4407 : 1991 : 2.4.6.2.1

Sample Origin: Higgins Rotomillings
Sampled By: GC Date: 15.02.05

DESCRIPTION	DOSAGE	DRY DENSITY (t/m³)	WET DENSITY (t/m³)	WATER CONTENT AS COMPACTED (%)	WATER CONTENT UNDER PLUNGER (%)	CBR (%)	PENE-TRATION (mm)	% OVER-SIZED (+19mm)	SWELL (%)	DATE TESTED	TESTED BY	SAMPLE NO.	CLEGG	COMMENTS
Milled asphalt	Natural at OMC	1.90	2.08	9.3	7.2	11	5.0	1	0.0	22.03.05	RC	433BF-A	28	
Milled asphalt	Natural at OMC	1.90	2.08	9.8	7.7	10	5.0	0	0.0	22.03.05	RC	433BF-B	30	

NOTES

1. CBR tests performed on fraction passing 19 mm test sieve.
2. A surcharge mass of 4 kg was used in all tests.
3. CBR samples were soaked for four days before testing.
4. OMC = optimum moisture content
5. Plunger penetration rate was 1 mm/min.
6. Clegg Hammer Impact Test carried out in accordance with ASTM 1995 D5874
7. Samples were compacted in accordance with NZS 4402 : 1986 Test 4.1.1 - NZ Standard Compaction method.
8. Results obtained in accordance with the above Standard Test Method.

Calculated By: RC Date : 23.03.05
Checked By : Date : 24.3.05
Approved Signatory: Date : 24.3.05

Report No : 21 5256 03
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THE CLAY INDEX
TEST METHOD 4407 : 1991 TEST 3.5

Job :	**Transfund Asphalt Milling**		
Date of Order :	20.01.05	Sample Origin :	Stockpile at Higgins yard
Sample Description :	Rotomillings	Sample Method:	NZS 4407 : 1991 : 2.4.6.2.1
Sampled By:	GC	Sample Date :	15.02.05

Test Details :

Sample History :	Air dried
Sample Source :	Natural fines

Test Results :

Sample No.	Sample Location	Clay Index
433 BF-A	Higgins yard	2.5
433 BF-B	Higgins yard	2.5

Comments :

Tested By :	RC	Date :	22.03.05
Calculated By :	RC	Date :	22.03.05
Checked By :	EC	Date :	24.3.05
Approved Signatory :		Date :	24.3.05

Laboratory test reports for material sampled from Blacktop Yard, carried out by Civil Lab:

Standard compaction
Particle size distribution
California Bearing Ratio test
Clay Index
Plasticity Index

THE CALIFORNIA BEARING RATIO TEST
TEST METHOD NZS 4407 : 1991 TEST 3.15

Job: **Transfund Asphalt Milling**
Date of Order: 20.01.05
Sample Method: NZS 4407:1991:2.4.6.2.1

Sample Origin: Blacktop Yard
Sampled By: GC Date: 09.03.05

LOCATION	DOSAGE	DRY DENSITY (t/m³)	WET DENSITY (t/m³)	WATER CONTENT AS COMPACTED (%)	WATER CONTENT UNDER PLUNGER (%)	CBR (%)	PENETRATION (mm)	% OVERSIZED (+19mm)	SWELL (%)	DATE TESTED	TESTED BY	SAMPLE NO.	CLEGG	COMMENTS
Stockpile at yard	Natural at OMC	1.90	2.04	7.4	5.8	9	2.5 & 5.0	12	0.0	31.03.05	RC	568 BF-A	30	Milled Asphalt
Stockpile at yard	Natural at OMC	1.86	1.96	5.3	5.8	6	2.5 & 5.0	10	0.0	04.04.05	RC	568 BF-B	25	Milled Asphalt
Stockpile at yard	Natural at OMC	1.88	1.98	5.6	5.5	11	2.5	3	0.0	04.04.05	RC	569 BF-A	29	Processed
Stockpile at yard	Natural at OMC	1.88	1.98	5.2	5.8	12	5.0	6	0.0	04.04.05	RC	569 BF-B	29	Processed

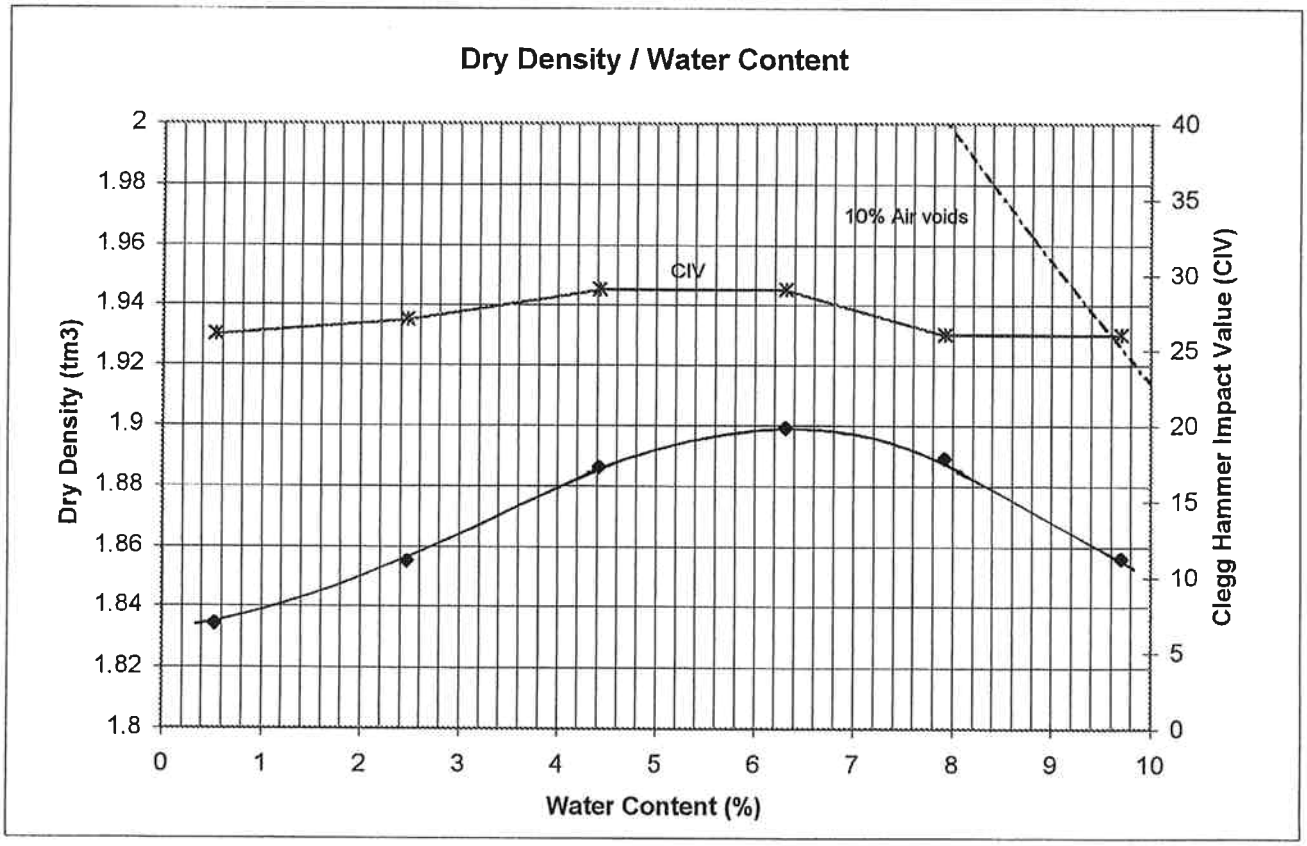
NOTES

1. CBR tests performed on fraction passing 19 mm test sieve.
2. A surcharge mass of 4 kg was used in all tests.
3. OMC = Optimum moisture content
4. CBR samples were wet up to an estimated optimum moisture content prior to compaction.
5. CBR samples were soaked for five days prior to testing.
6. Plunger penetration rate was 1 mm/min.
7. Clegg Hammer Impact Test carried out in accordance with ASTM 1995 D5874
8. Samples were compacted in accordance with NZS 4402 : 1986 Test 4.1.1 - NZ Standard Compaction method
9. Results obtained in accordance with the above Standard Test Method.

Calculated By: RC Date : 06.04.05
Checked By : KP Date : 18.04.05
Approved Signatory: Date : 20.04.05

DETERMINATION OF THE DRY DENSITY / WATER CONTENT RELATIONSHIP
NEW ZEALAND STANDARD COMPACTION
TEST METHOD NZS 4402 : 1986 TEST 4.1.1

Job:	**Transfund Asphalt Milling**		
Date of order:	20.01.05	Sample No.:	568 BF-A
Sample method:	NZS 4407 : 1991 : 2.4.6.2.1	Sample Origin :	Blacktop Yard
Sampled By :	GC	Sample Date :	09.03.05

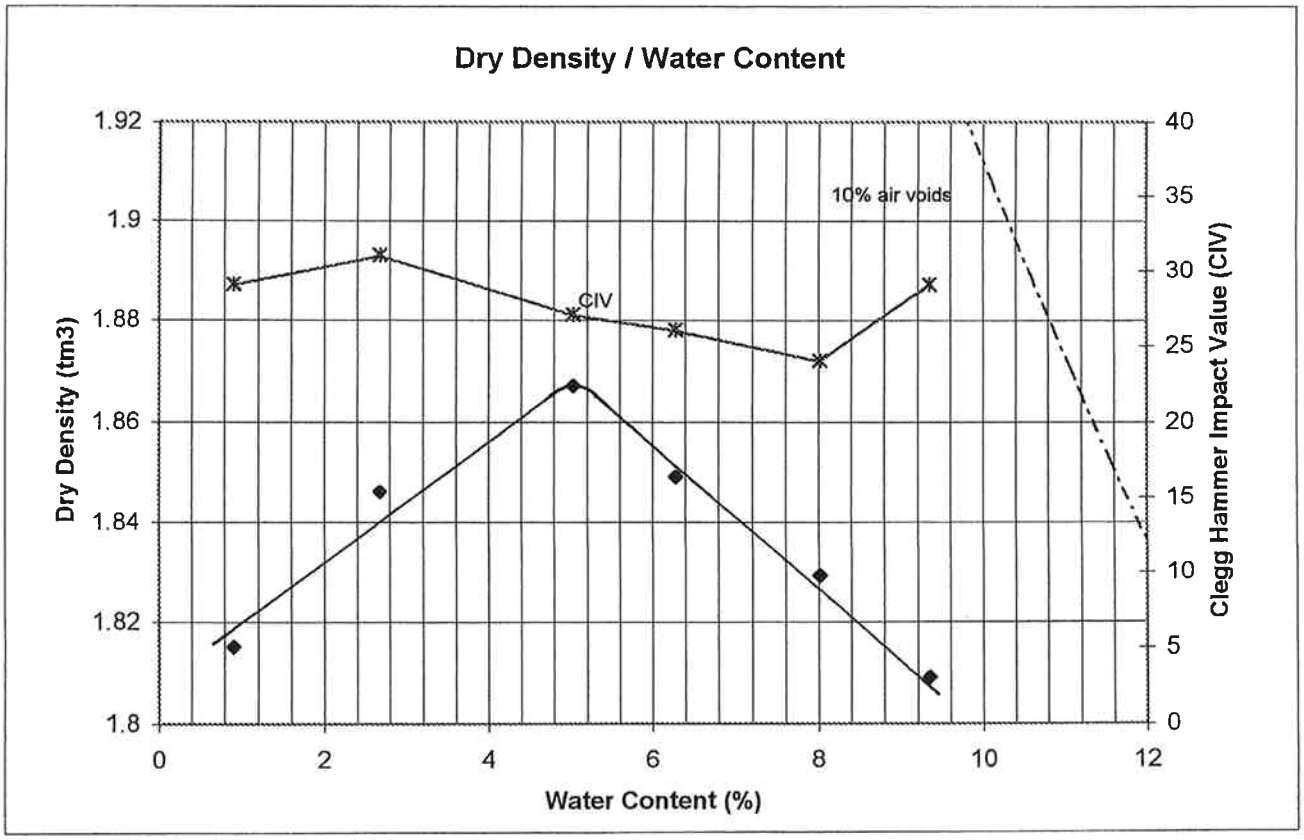


Maximum Dry Density :	**1.90**	t/m^3	Optimum Water Content :	**6.5**	%
Natural Water Content :	0.31	%			
Solid Density of Soil :	2.7	t/m^3	(Assumed)		
Description of Soil :	Milled asphalt				
Fraction of soil tested :	Passing 19mm sieve		History of sample :	Wet up	
Comments :					

Tested By:	RC	Date :	23.03.05
Calculated By :	TB	Date :	04.04.05
Checked By :	KP	Date :	18.04.05
Approved Signatory :		Date :	20.04.05

DETERMINATION OF THE DRY DENSITY / WATER CONTENT RELATIONSHIP
NEW ZEALAND STANDARD COMPACTION
TEST METHOD NZS 4402 : 1986 TEST 4.1.1

Job:	**Transfund Asphalt Milling**		
Date of order:	20.01.05	Sample No.:	568 BF-B
Sample method:	NZS 4407 : 1991 : 2.4.6.2.1	Sample Origin :	Blacktop Yard
Sampled By :	GC	Sample Date :	09.03.05

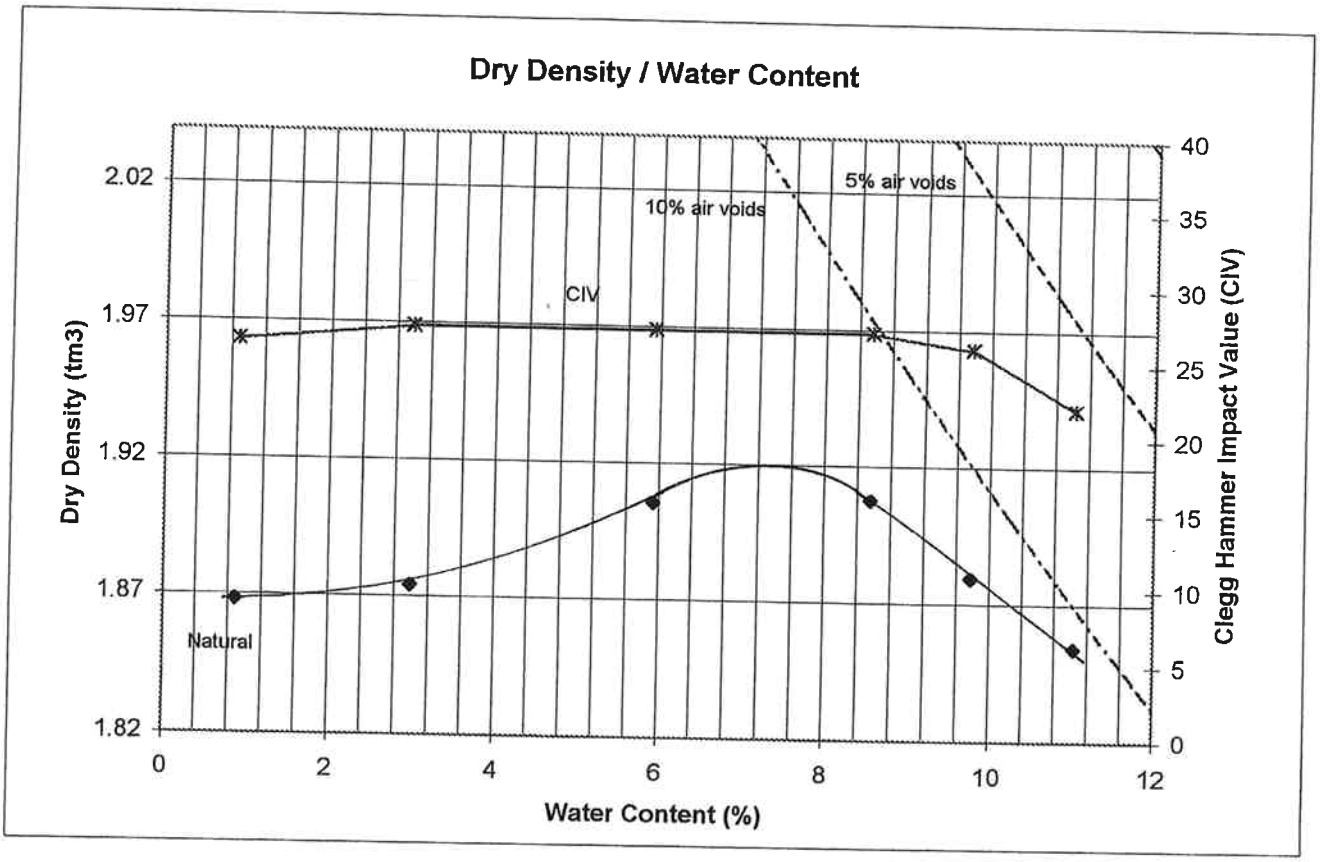


Maximum Dry Density :	**1.87**	t/m^3	Optimum Water Content :	**5.0**	%
Natural Water Content :	0.31	%			
Solid Density of Soil :	2.7	t/m^3	(Assumed)		
Description of Soil :	Milled asphalt				
Fraction of soil tested :	Passing 19mm sieve		History of sample :	Wet up	
Comments :					

Tested By:	RC	Date :	22 -30.03.05
Calculated By :	TB	Date :	01.04.05
Checked By :	KP	Date :	18.04.05
Approved Signatory :		Date :	20.04.05

DETERMINATION OF THE DRY DENSITY / WATER CONTENT RELATIONSHIP
NEW ZEALAND STANDARD COMPACTION
TEST METHOD NZS 4402 : 1986 TEST 4.1.1

Job:	**Transfund Asphalt Milling**		
Date of order:	20.01.05	Sample No.:	569 BF-A
Sample method:	NZS 4407 : 1991 : 2.4.6.2.1	Sample Origin :	Blacktop
Sampled By :	GC	Sample Date :	09.03.05

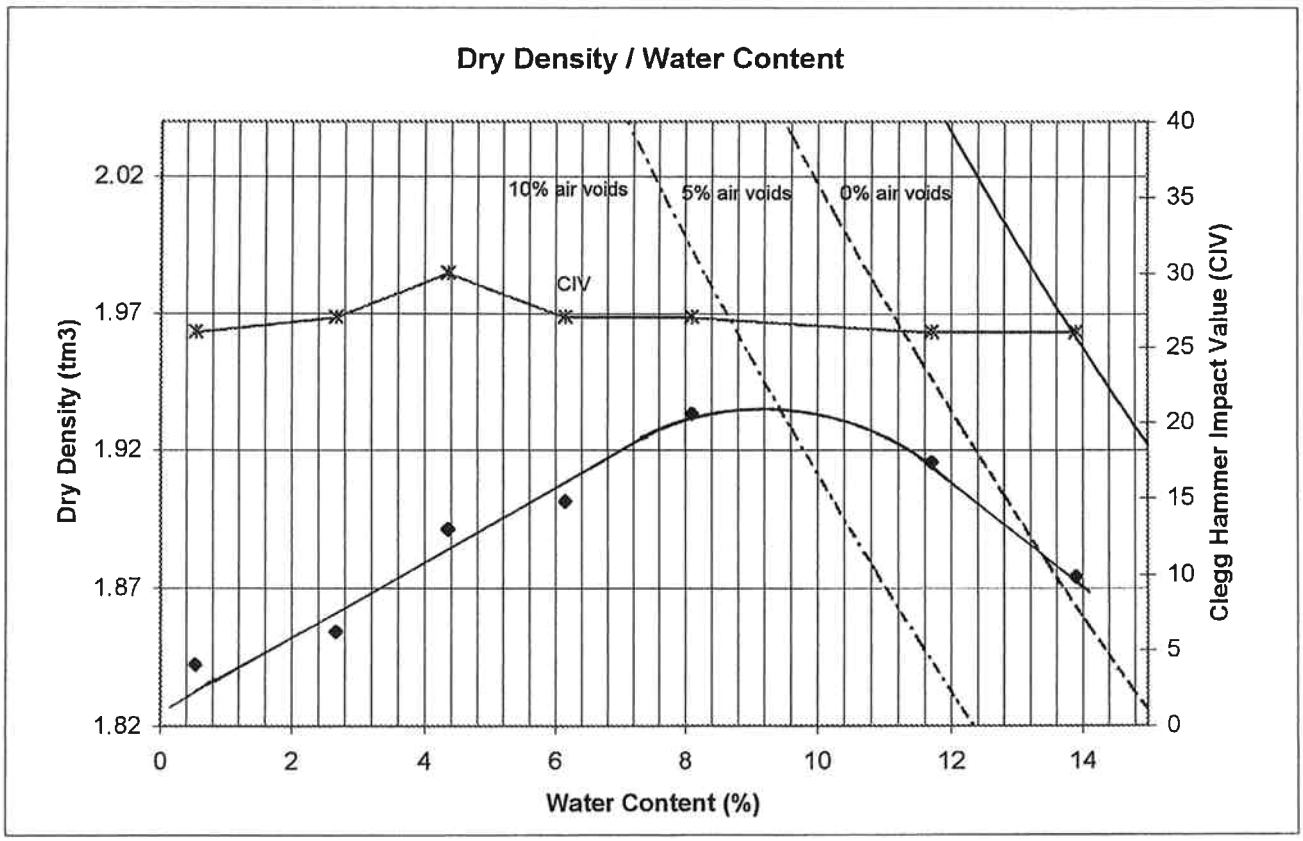


Maximum Dry Density :	**1.92**	t/m^3	Optimum Water Content :	**7.5**	%
Natural Water Content :	0.55	%			
Solid Density of Soil :	2.7	t/m^3	(Assumed)		
Description of Soil :	Processed millings				
Fraction of soil tested :	Passing 19mm sieve		History of sample :	Wet up	
Comments :					

Tested By:	RC	Date :	30.03.05
Calculated By :	RC	Date :	04.04.05
Checked By :	KP	Date :	18.04.05
Approved Signatory :		Date :	20.04.05

DETERMINATION OF THE DRY DENSITY / WATER CONTENT RELATIONSHIP
NEW ZEALAND STANDARD COMPACTION
TEST METHOD NZS 4402 : 1986 TEST 4.1.1

Job:	**Transfund Asphalt Milling**		
Date of order:	20.01.05	Sample No.:	569 BF-B
Sample method:	NZS 4407 : 1991 : 2.4.6.2.1	Sample Origin :	Blacktop
Sampled By :	GC	Sample Date :	09.03.05



Maximum Dry Density :	**1.94**	t/m^3	Optimum Water Content :	**9.5**	%
Natural Water Content :	0.55	%			
Solid Density of Soil :	2.7	t/m^3	(Assumed)		
Description of Soil :	Processed millings				
Fraction of soil tested :	Passing 19mm sieve		History of sample :	Wet up	
Comments :					

Tested By:	RC	Date :	05.04.05
Calculated By :	TB	Date :	07.04.05
Checked By :	KP	Date :	18.04.05
Approved Signatory :		Date :	20.04.05

DETERMINATION OF THE PLASTICITY INDEX
TEST METHOD NZS 4402 : 1986 TEST 2.2, 2.3 & 2.4

Job:	Transfund Asphalt Milling		
Date of order:	20.01.05	Sample origin:	Blacktop Yard
Sample method:	NZS 4407 : 1991 : 2.4.6.2.1	Sample Description:	see below
Sampled By:	GC	Date:	09.03.05

Test Details :

Test performed on : fraction passing 0.425mm sieve
History : Natural

Sample No.	Sample Description	Depth (m)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)
568 BF-A	Milled asphalt	-	NA	NP	NA	0.31
568 BF-B	Milled asphalt	-	NA	NP	NA	0.31
569 BF-A	Processed	-	NA	NP	NA	0.55
569 BF-B	Processed	-	NA	NP	NA	0.55

Comments :

Tested By:	RC	Date :	04.04.05
Calculated By :	RC	Date :	04.04.05
Checked By :	KP	Date :	18.04.05
Approved Signatory :		Date :	20.04.05

Report No : 21 5256 02
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THE CLAY INDEX
TEST METHOD 4407 : 1991 TEST 3.5

Job :	**Transfund Asphalt Milling**		
Date of Order :	20.01.05	Sample Origin :	Blacktop Yard
Sample Description :	see below	Sample Method:	NZS 4407 : 1991 : 2.4.6.2.1
Sampled By:	GC	Sample Date :	09.03.05

Test Details :

Sample History :	Air dried
Sample Source :	Natural fines

Test Results :

Sample No.	Sample Description	Clay Index
568 BF-A	Milled asphalt	0.71
568 BF-B	Milled asphalt	0.73
569 BF-A	Processed	0.80
569 BF-B	Processed	0.79

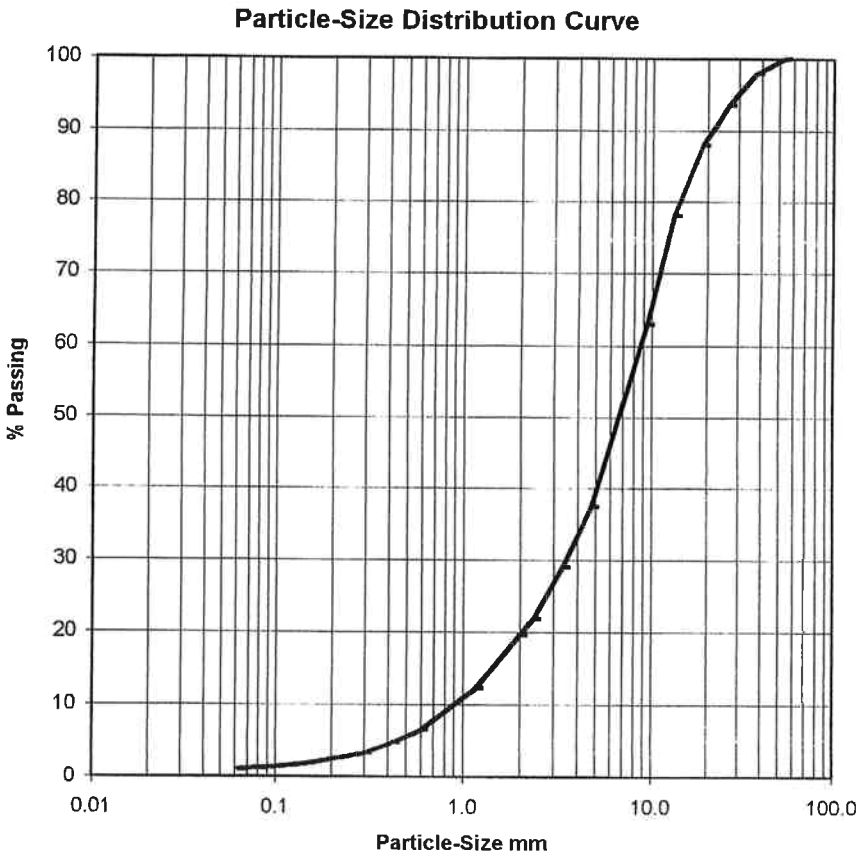
Comments :

Tested By :	RC	Date :	01 & 04.04.05
Calculated By :	RC	Date :	01 & 04.04.05
Checked By :	KP	Date :	18.04.05
Approved Signatory :		Date :	20.04.05

PARTICLE SIZE DISTRIBUTION
SUBSIDIARY METHOD BY DRY SIEVING
TEST METHOD NZS 4407 : 1991 TEST 3.8.2

Job :	**Transfund Asphalt Milling**		
Date of Order :	20.01.05	Sample No :	568 BF-A
Sample Description :	Millings	Sample Origin :	Blacktop Yard
Sample Method :	NZS 4407 : 1991 : 2.4.6.2.1	Sample History :	Air dried
Sampled By :	GC	Sample Date :	09.03.05

Sieve (mm)	Test Result % Passing	Standard Spec. Lower	Standard Spec. Upper
53.0	100		
37.5	98		
26.5	94		
19.0	88		
13.2	78		
9.50	63		
4.75	37		
3.35	29		
2.36	22		
2.00	20		
1.18	12		
0.600	6		
0.425	5		
0.300	3		
0.212	3		
0.150	2		
0.090	1		
0.075	1		
0.063	1		



Percentage Loss : 0.4% obtained by weighing

Comments :

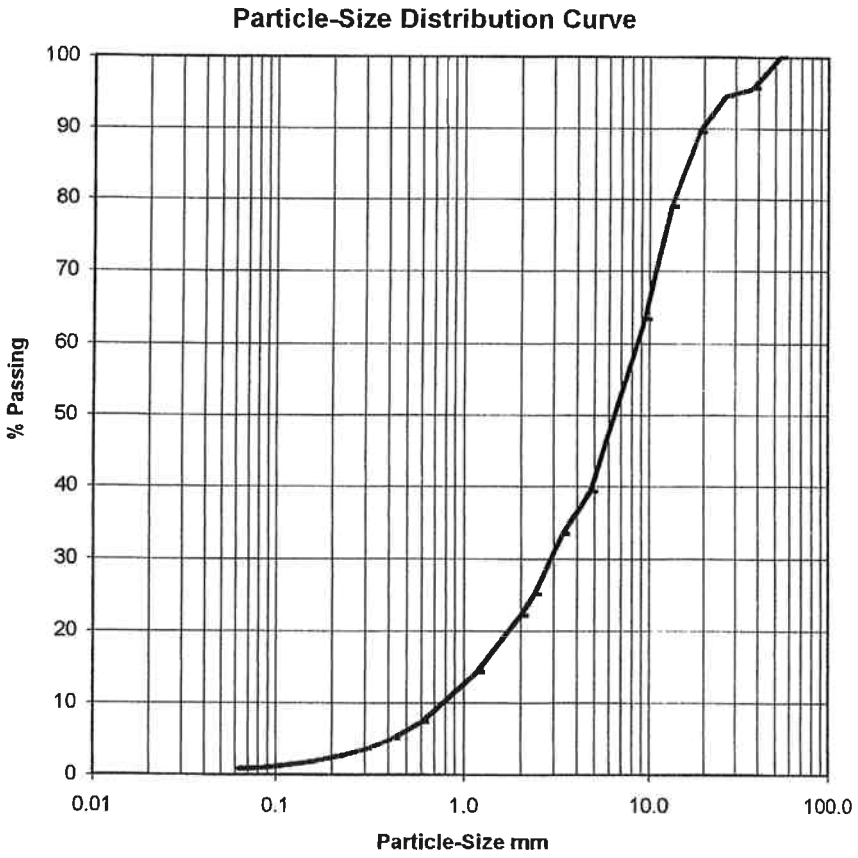
Results were obtained from an air dried test sample

Tested By :	JM	Date :	23.03.05
Calculated By :	JM	Date :	23.03.05
Checked By :	KP	Date :	18.04.05
Approved Signatory :		Date :	20.04.05

PARTICLE SIZE DISTRIBUTION
SUBSIDIARY METHOD BY DRY SIEVING
TEST METHOD NZS 4407 : 1991 TEST 3.8.2

Job :	**Transfund Asphalt Milling**		
Date of Order :	20.01.05	Sample No :	568 BF-B
Sample Description :	Millings	Sample Origin :	Blacktop Yard
Sample Method :	NZS 4407 : 1991 : 2.4.6.2.1	Sample History :	Air dried
Sampled By :	GC	Sample Date :	09.03.05

Sieve (mm)	Test Result % Passing	Standard Spec. Lower	Standard Spec. Upper
53.0	100		
37.5	96		
26.5	95		
19.0	90		
13.2	79		
9.50	63		
4.75	39		
3.35	33		
2.36	25		
2.00	22		
1.18	14		
0.600	7		
0.425	5		
0.300	4		
0.212	3		
0.150	2		
0.090	1		
0.075	1		
0.063	1		



Percentage Loss : 0.3% obtained by weighing

Comments :

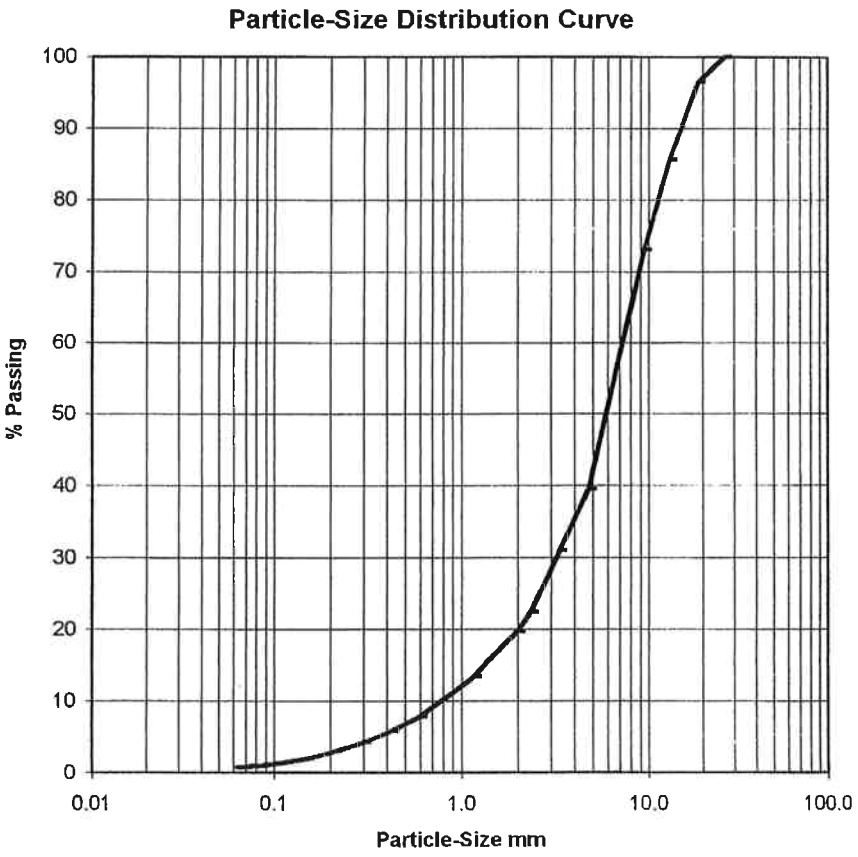
Results were obtained from an air dried test sample

Tested By :	JM	Date :	30.03.05
Calculated By :	JM	Date :	31.03.05
Checked By :	KP	Date :	18.04.05
Approved Signatory :		Date :	20.04.05

PARTICLE SIZE DISTRIBUTION
SUBSIDIARY METHOD BY DRY SIEVING
TEST METHOD NZS 4407 : 1991 TEST 3.8.2

Job :	**Transfund Asphalt Milling**		
Date of Order :	20.01.05	Sample No :	569 BF-A
Sample Description :	Processed	Sample Origin :	Blacktop Yard
Sample Method :	NZS 4407 : 1991 : 2.4.6.2.1	Sample History :	Air dried
Sampled By :	GC	Sample Date :	09.03.05

Sieve (mm)	Test Result % Passing	Standard Spec. Lower	Standard Spec. Upper
26.5	100		
19.0	97		
13.2	86		
9.50	73		
4.75	39		
3.35	31		
2.36	22		
2.00	20		
1.18	13		
0.600	8		
0.425	6		
0.300	4		
0.212	3		
0.150	2		
0.090	1		
0.075	1		
0.063	1		



Percentage Loss : 0.1% obtained by weighing

Comments :

Results were obtained from an air dried test sample

Tested By :	JM	Date :	30.03.05
Calculated By :	JM	Date :	31.03.05
Checked By :	KP	Date :	18.04.05
Approved Signatory :		Date :	20.04.05

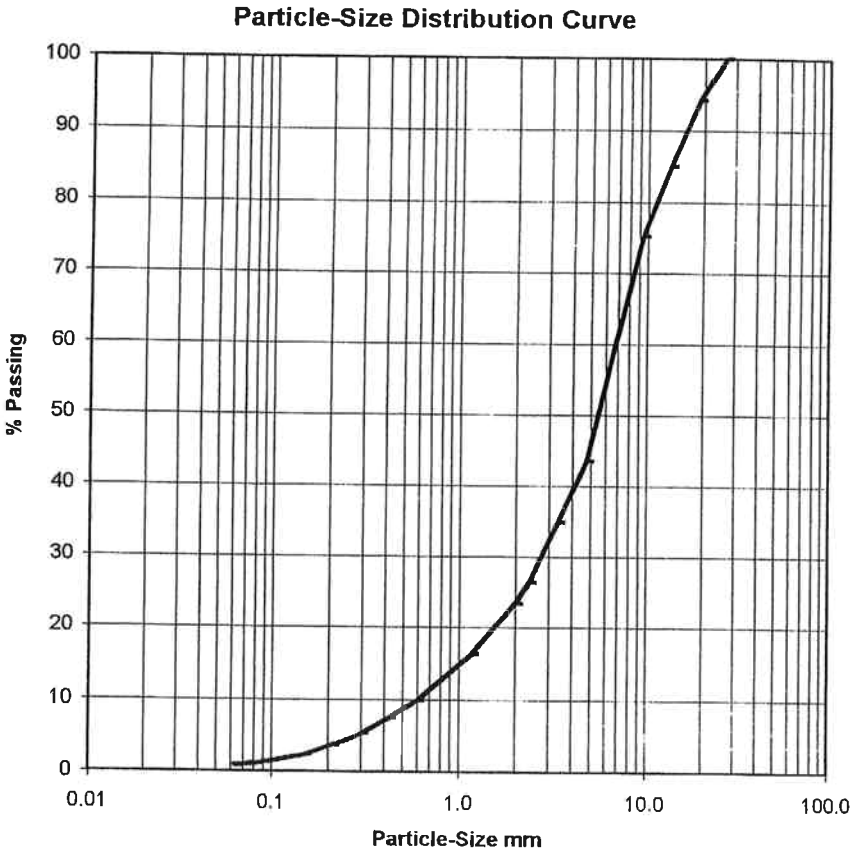
PARTICLE SIZE DISTRIBUTION
SUBSIDIARY METHOD BY DRY SIEVING
TEST METHOD NZS 4407 : 1991 TEST 3.8.2

Job : **Transfund Asphalt Milling**

Date of Order : 20.01.05
Sample Description : Processed
Sample Method : NZS 4407 : 1991 : 2.4.6.2.1
Sampled By : GC

Sample No : 569 BF-B
Sample Origin : Blacktop Yard
Sample History : Air dried
Sample Date : 09.03.05

Sieve (mm)	Test Result % Passing	Standard Spec. Lower	Standard Spec. Upper
26.5	100		
19.0	94		
13.2	85		
9.50	75		
4.75	43		
3.35	35		
2.36	26		
2.00	23		
1.18	16		
0.600	10		
0.425	7		
0.300	5		
0.212	4		
0.150	2		
0.090	1		
0.075	1		
0.063	1		



Percentage Loss : 0.2% obtained by weighing

Comments :

Results were obtained from an air dried test sample

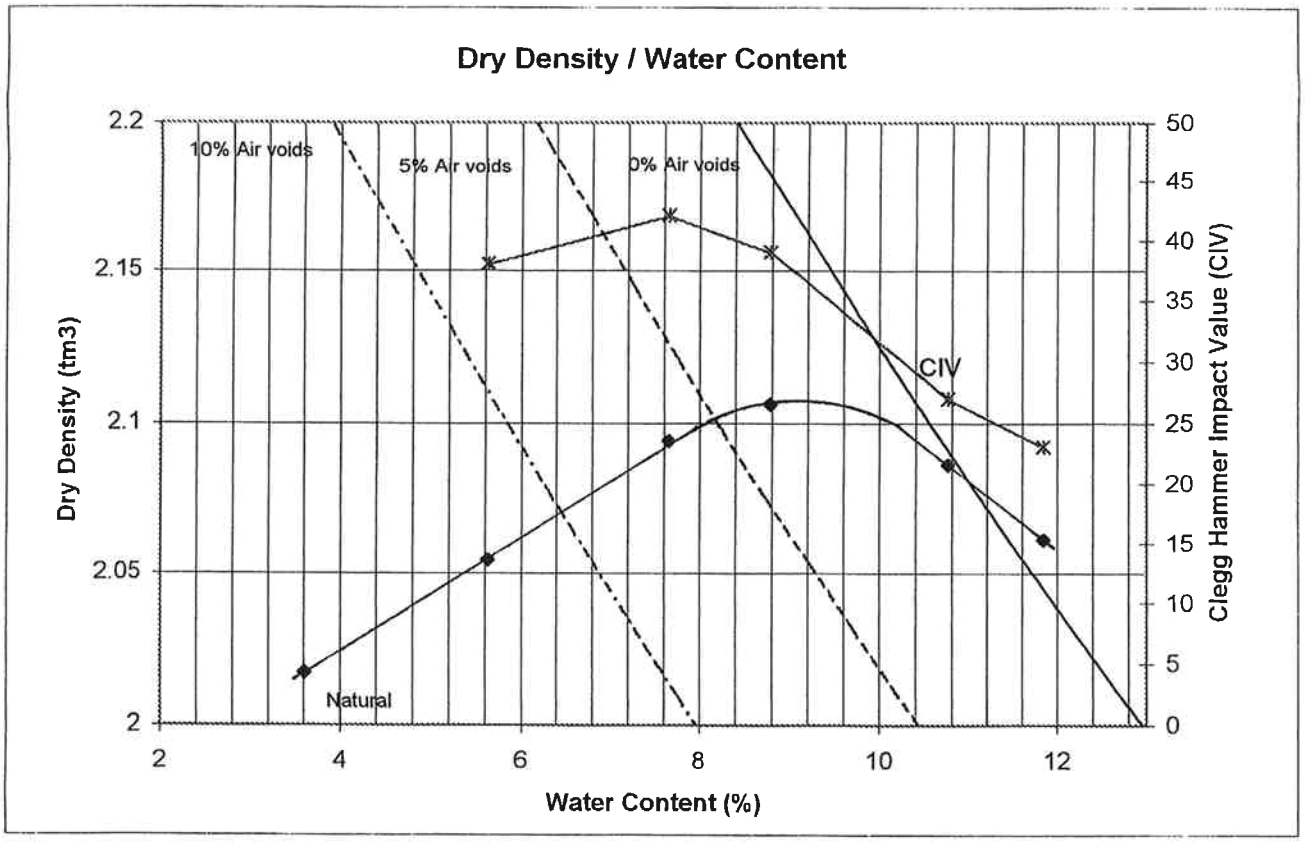
Tested By : JM Date : 30-31.03.05
Calculated By : JM Date : 31.03.05
Checked By : KP Date : 18.04.05
Approved Signatory : Date : 20.04.05

Laboratory test reports for material sampled from Fulton Hogan, carried out by Civil Lab:

Standard compaction curve
Particle size distribution
California Bearing Ratio test
Clay Index
Plasticity Index

DETERMINATION OF THE DRY DENSITY / WATER CONTENT RELATIONSHIP
NEW ZEALAND STANDARD COMPACTION
TEST METHOD NZS 4402 : 1986 TEST 4.1.1

Job:	Transfund		
Date of order:	20.01.05	Sample No.:	773BE-A
Sample method:	NZS 4407:1991:2.4.6.1.1	Sample Origin :	Fulton Hogan Stockpile
Sampled By :	GC	Sample Date :	21.1.05



Maximum Dry Density :	**2.11**	t/m^3	Optimum Water Content :	**9.0**	%
Natural Water Content :	3.6	%			
Solid Density of Soil :	2.7	t/m^3	(Assumed)		
Description of Soil :	Milled Asphalt				
Fraction of soil tested :	Whole sample		History of sample :	Wet up	

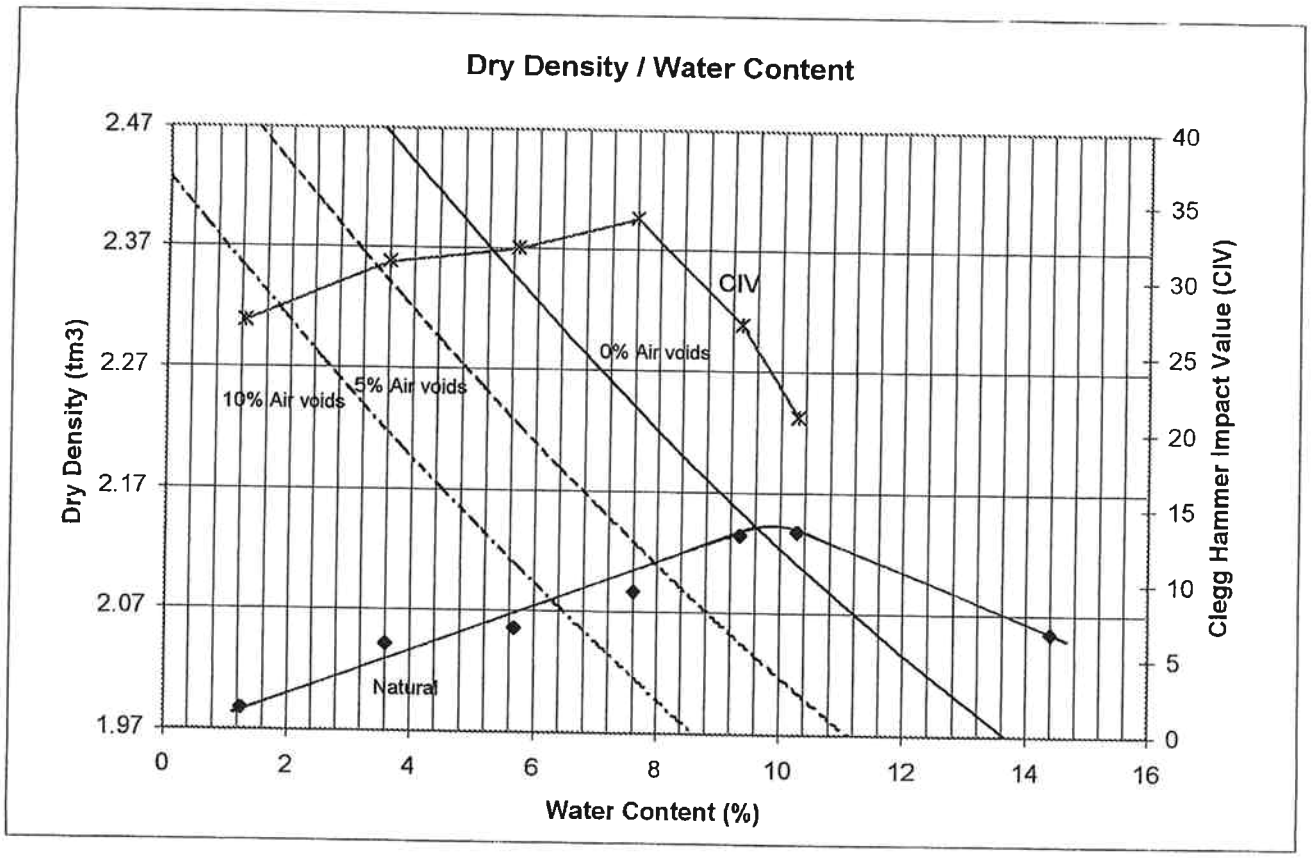
Comments :

Clegg Hammer Impact tests were carried out in accordance with ASTM D5874 - 02

Tested By:	JM	Date :	27 and 28.01.05
Calculated By :	JM	Date :	01.02.05
Checked By :	CA	Date :	23.02.05
Approved Signatory :		Date :	28-02-05

DETERMINATION OF THE DRY DENSITY / WATER CONTENT RELATIONSHIP
NEW ZEALAND STANDARD COMPACTION
TEST METHOD NZS 4402 : 1986 TEST 4.1.1

Job:	Transfund		
Date of order:	20.1.05	Sample No.:	773BE-B
Sample method:	NZS 4407:1991:2.4.6.1.1	Sample Origin :	Fulton Hogan Stockpile
Sampled By :	GC	Sample Date :	21.1.05



Maximum Dry Density :	**2.14**	t/m^3	Optimum Water Content :	**10**	%
Natural Water Content :	3.6	%			
Solid Density of Soil :	2.7	t/m^3	(Assumed)		
Description of Soil :	Milled Asphalt				
Fraction of soil tested :	Whole sample		History of sample :	Air dried and wet up	
Comments :					

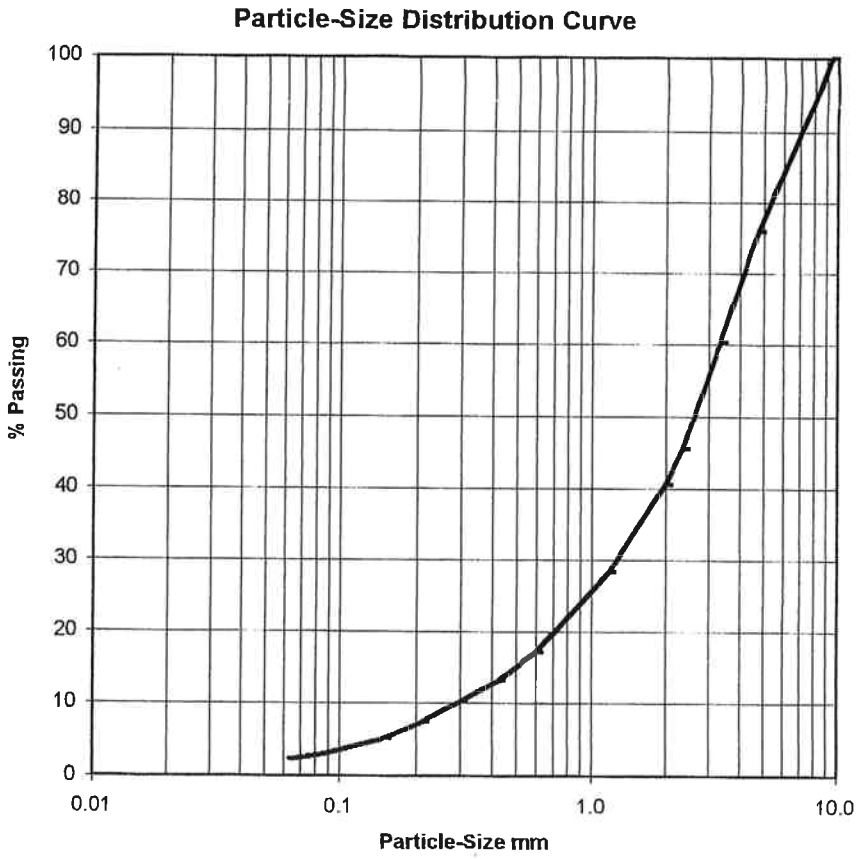
Clegg Hammer Impact tests were carried out in accordance with ASTM D5874 - 02

Tested By:	RC	Date :	01.02.05
Calculated By :	RC	Date :	03.02.05
Checked By :	CA	Date :	23.02.05
Approved Signatory :		Date :	28.02.05

PARTICLE SIZE DISTRIBUTION
SUBSIDIARY METHOD BY DRY SIEVING
TEST METHOD NZS 4407 : 1991 TEST 3.8.2

Job :	**Transfund**		
Date of Order :	20.01.05	Sample No :	773BE-A
Sample Description :	Milled Asphalt	Sample Origin :	Fulton Hogan Stockpile
Sample Method :	NZS 4407:1991 Test 2.4.6.1.1	Sample History :	Air dried
Sampled By :	GC	Sample Date :	21.01.05

Sieve (mm)	Test Result % Passing	Standard Spec. Lower	Standard Spec. Upper
9.50	100		
4.75	76		
3.35	60		
2.36	46		
2.00	41		
1.18	28		
0.600	17		
0.425	13		
0.300	10		
0.212	7		
0.150	5		
0.090	3		
0.075	3		
0.063	2		



Percentage Loss : 0.7% obtained by weighing

Comments :

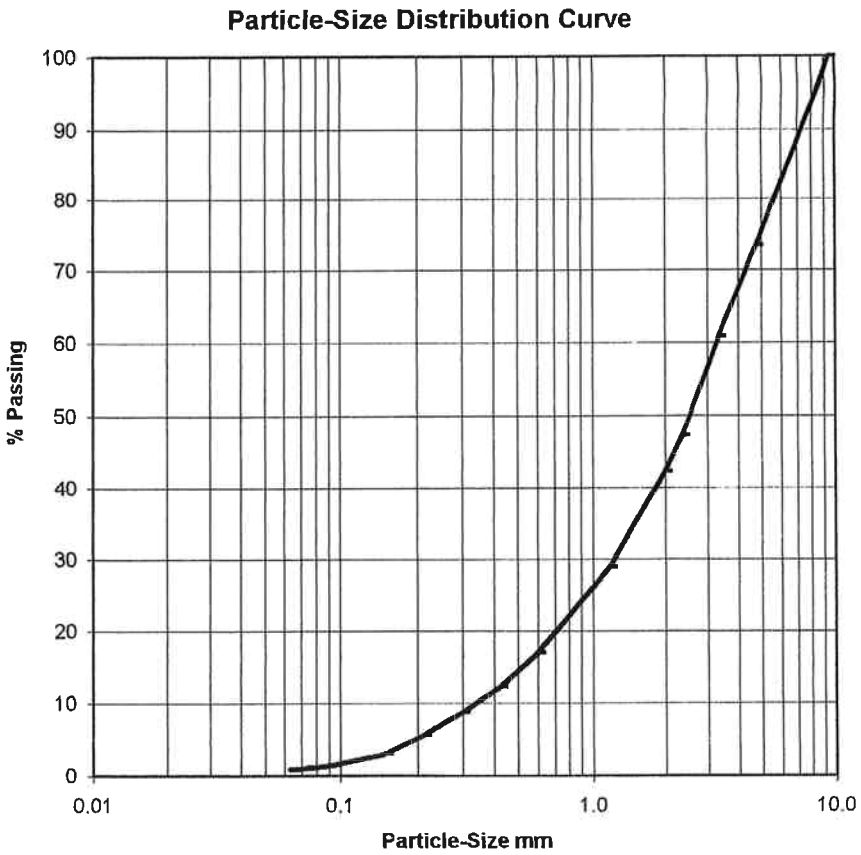
Results were obtained from an air dried test sample

Tested By :	RC	Date :	07 and 08.02.05
Calculated By :	RC	Date :	09.02.05
Checked By :	CA	Date :	23.02.05
Approved Signatory :		Date :	28.02.05

PARTICLE SIZE DISTRIBUTION
SUBSIDIARY METHOD BY DRY SIEVING
TEST METHOD NZS 4407 : 1991 TEST 3.8.2

Job :	**Transfund**		
Date of Order :	20.01.05	Sample No :	773BE-B
Sample Description :	Milled Asphalt	Sample Origin :	Fulton Hogan Stockpile
Sample Method :	NZS 4407:1991 Test 2.4.6.1.1	Sample History :	Air dried
Sampled By :	GC	Sample Date :	21.01.05

Sieve (mm)	Test Result % Passing	Standard Spec. Lower	Standard Spec. Upper
9.50	100		
4.75	73		
3.35	61		
2.36	47		
2.00	42		
1.18	29		
0.600	17		
0.425	12		
0.300	9		
0.212	5		
0.150	3		
0.090	1		
0.075	1		
0.063	1		



Percentage Loss : 0.5% obtained by weighing

Comments :

Results were obtained from an air dried test sample

Tested By :	RC	Date :	02.02.05
Calculated By :	RC	Date :	07.02.05
Checked By :	CA	Date :	23.02.05
Approved Signatory :		Date :	28.02.05

THE CALIFORNIA BEARING RATIO TEST
TEST METHOD NZS 4407 : 1991 TEST 3.15

Job: **Transfund**
Date of Order: 20.01.05
Sample Method: NZS 4407:1991:2.4.6.1.1
Sample Origin: Fulton Hogan Stockpile
Sampled By: GC Date: 21.01.05

LOCATION	DOSAGE	DRY DENSITY (t/m^3)	WET DENSITY (t/m^3)	WATER CONTENT AS COMPACTED (%)	WATER CONTENT UNDER PLUNGER (%)	CBR (%)	PENETRATION (mm)	% OVERSIZED (+19mm)	SWELL (%)	DATE TESTED	TESTED BY	SAMPLE NO.	CLEGG	COMMENTS
Stockpile	Natural - OMC	2.10	2.24	7.0	7.7	25	5.0	0	0.0	07.02.05	RC	773BE-A	34	Milled Asphalt
Stockpile	Natural - OMC	2.12	2.28	7.2	8.1	25	2.5 & 5.0	0	0.0	07.02.05	RC	773BE-B	33	Milled Asphalt

NOTES

1. CBR tests performed on fraction passing 19 mm test sieve.
2. A surcharge mass of 4 kg was used in all tests.
3. OMC = Optimum moisture content
4. CBR samples were wet up to an estimated optimum moisture content prior to compaction.
5. CBR samples were soaked for six days before testing.
6. Plunger penetration rate was 1 mm/min.
7. Clegg Hammer Impact Test carried out in accordance with ASTM 2002 D5874
8. Samples were compacted in accordance with NZS 4402 : 1986 Test 4.1.1 - NZ Standard Compaction method
9. Results obtained in accordance with the above Standard Test Method.

Calculated By: RC Date : 10.02.05
Checked By : CA Date : 23.02.05
Approved Signatory: Date : 28.02.05

Report No : 21 5256 00

THE CLAY INDEX
TEST METHOD 4407 : 1991 TEST 3.5

Job :	**Transfund**		
Date of Order :	20.1.05	Sample Origin :	Fulton Hogan Stockpile
Sample Description :	Milled Asphalt	Sample Method:	NZS 4407:1991:2.4.6.1.1
Sampled By:	GC	Sample Date :	21.01.05

Test Details :

Sample History :	Air dried
Sample Source :	Natural fines

Test Results :

Sample No.	Sample Location	Clay Index
733BE-A	Stockpile	0.53
773BE-B	Stockpile	0.53

Comments :

Tested By :	RC	Date :	02 to 07.02.05
Calculated By :	RC	Date :	07.02.05
Checked By :	CA	Date :	23.02.05
Approved Signatory :		Date :	28.02.05

DETERMINATION OF THE PLASTICITY INDEX
TEST METHOD NZS 4402 : 1986 TEST 2.2, 2.3 & 2.4

Job: **Transfund**
Date of order: 20.1.05
Sample method: NZS 4407:1991:2.4.6.2.2
Sample By: GC

Sample origin: Fulton Hogan Stockpile
Sample Description: Milled Asphalt
Date: 21.01.05

Test Details :

Test performed on : Fraction passing 0.425mm sieve
History : Natural

Sample No.	Location	Depth (m)	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)
773BE-A	Stockpile	-	N/A	N.P.	N/A	-
773BE-B	Stockpile	-	N/A	N.P.	N/A	-

Comments :

Tested By: RC Date : 2.2.05 to 7.2.05
Calculated By : RC Date : 07.02.05
Checked By : CA Date : 23.02.05
Approved Signatory : Date : 28.02.05

Laboratory test reports for material sampled from Works Lunn Avenue Yard, carried out by Civil Lab:

Standard compaction curve
Particle size distribution
California Bearing Ratio test
Clay Index
Plasticity Index

CIVIL LAB

Report No. 21 5256 01
Page 2 of 12

THE CALIFORNIA BEARING RATIO TEST
TEST METHOD NZS 4407 : 1991 TEST 3.15

Job: **Transfund Asphalt Milling Project**
Date of Order: 20.01.05
Sample Method: NZS 4407 : 1991 : 2.4.6.2.1

Sample Origin: Works yard
Sampled By: GC Date: 01.02.05

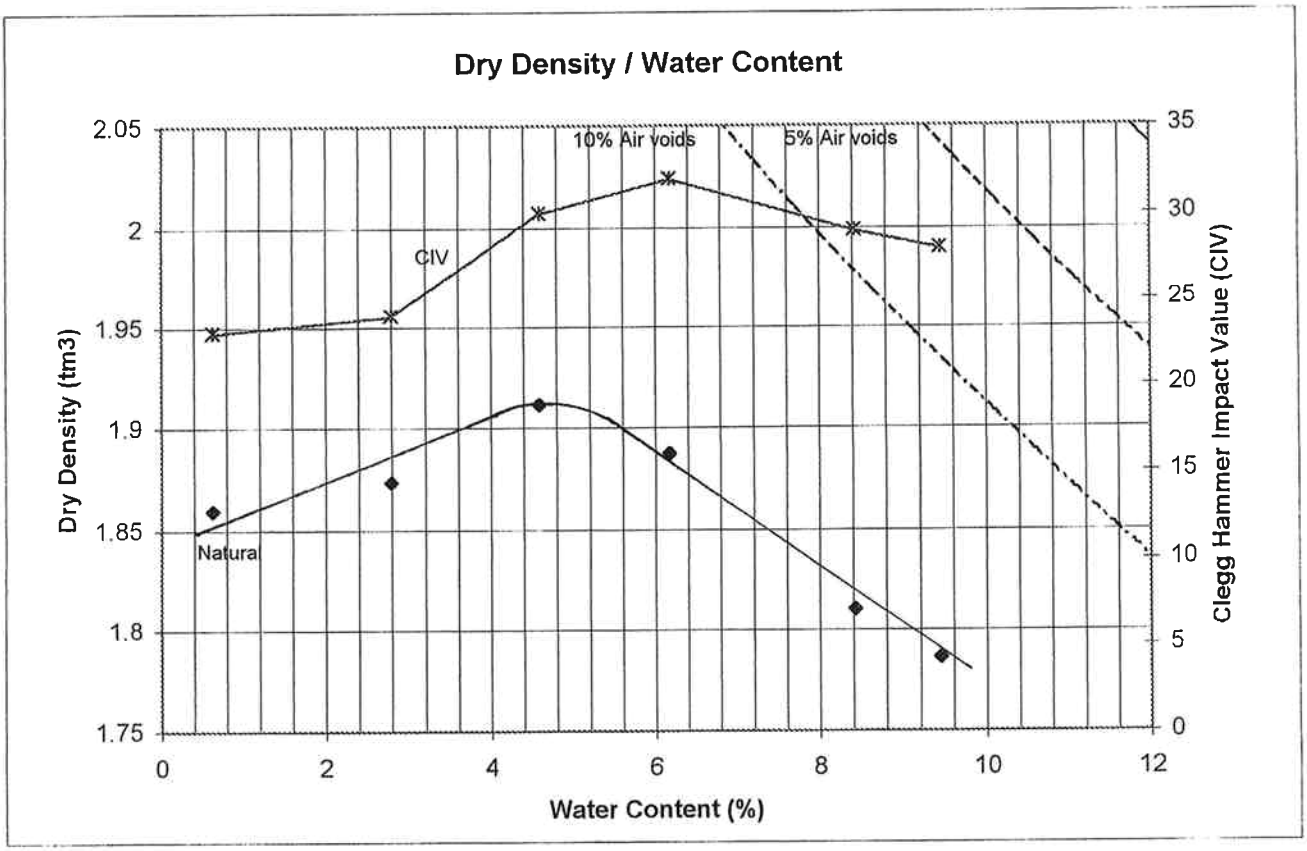
LOCATION	DOSAGE	DRY DENSITY (t/m³)	WET DENSITY (t/m³)	WATER CONTENT AS COMPACTED (%)	WATER CONTENT UNDER PLUNGER (%)	CBR (%)	PENE-TRATION (mm)	% OVER-SIZED (+19mm)	SWELL (%)	DATE TESTED	TESTED BY	SAMPLE NO.	CLEGG	COMMENTS
Millings (A)	Natural at OMC	1.86	1.96	4.5	7.5	20	5.0	0	0.0	04.03.05	RC	115 BF	28	Milled asphalt
Millings (B)	Natural at OMC	1.86	1.96	4.9	6.9	17	2.5	0	0.0	04.03.05	RC	116 BF	28	Milled asphalt
*Surge (A)	Natural at OMC	1.66	1.72	3.8	4.3	5	2.5	0	0.0	04.03.05	RC	117 BF	28	Bituminous aggregate
*Surge (B)	Natural at OMC	1.68	1.74	4.2	4.9	5	2.5	1	0.0	04.03.05	RC	118 BF	30	Bituminous aggregate
	* Note - The material is highly bituminous, so it was very elastic during penetration testing, hence CBR result is low. Clegg is high because of further compaction by clegg hammer													

NOTES
1. CBR tests performed on fraction passing 19 mm test sieve.
2. A surcharge mass of 4 kg was used in all tests.
3. CBR samples were soaked for eight days before testing.
4. Samples were wet up to an estimated optimum moisture content (OMC) prior to compaction.
5. Plunger penetration rate was 1 mm/min.
6. Clegg Hammer Impact Test carried out in accordance with ASTM 1995 D5874
7. Samples were compacted in accordance with NZS 4402 : 1986 Test 4.1.1 - NZ Standard Compaction method.
8. Results obtained in accordance with the above Standard Test Method.

Calculated By: RC Date : 07.03.05
Checked By : Date : 15.4.05
Approved Signatory: Date : 15.4.05

DETERMINATION OF THE DRY DENSITY / WATER CONTENT RELATIONSHIP
NEW ZEALAND STANDARD COMPACTION
TEST METHOD NZS 4402 : 1986 TEST 4.1.1

Job:	Transfund Asphalt Milling Project		
Date of order:	20.1.05	Sample No.:	115BF
Sample method:	NZS 4407:1991:2.4.6.2.1	Sample Origin :	Millings (A)
Sampled By :	GC	Sample Date :	1.2.05

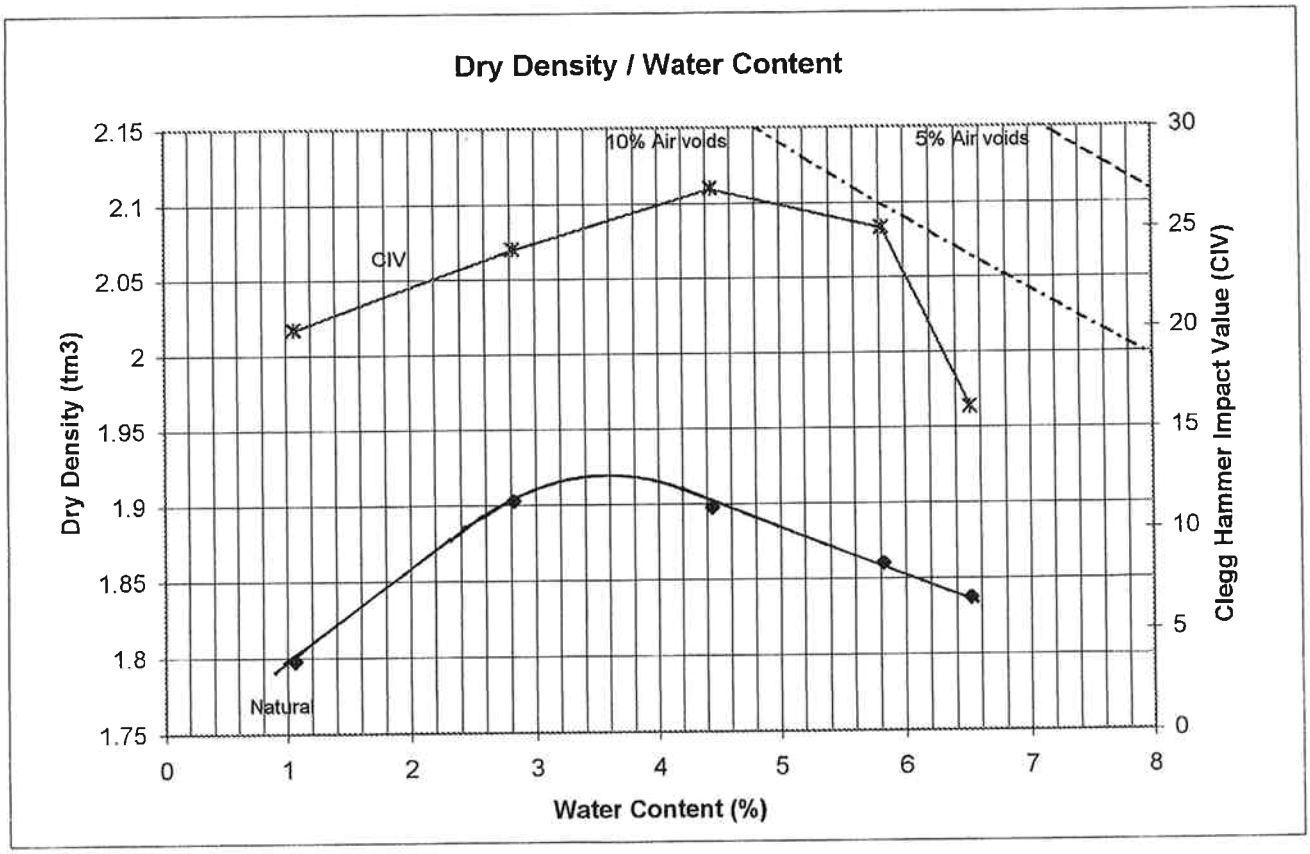


Maximum Dry Density :	**1.91**	t/m^3	Optimum Water Content :	**4.6**	%
Natural Water Content :	0.63	%			
Solid Density of Soil :	2.7	t/m^3	(Assumed)		
Description of Soil :	Millings				
Fraction of soil tested :	Passing 19mm sieve		History of sample :	Wet up	
Comments :	-				

Tested By:	JM and RC	Date :	21.02 and 08.03.05
Calculated By :	RC	Date :	25.02 and 09.03.05
Checked By :	RC	Date :	15.3.05
Approved Signatory :		Date :	15.3.05.

DETERMINATION OF THE DRY DENSITY / WATER CONTENT RELATIONSHIP
NEW ZEALAND STANDARD COMPACTION
TEST METHOD NZS 4402 : 1986 TEST 4.1.1

Job:	Transfund Asphalt Milling Project		
Date of order:	20.01.05	Sample No.:	116BF
Sample method:	NZS 4407:1991:2.4.6.2.1	Sample Origin :	Millings (B)
Sampled By :	GC	Sample Date :	1.2.05

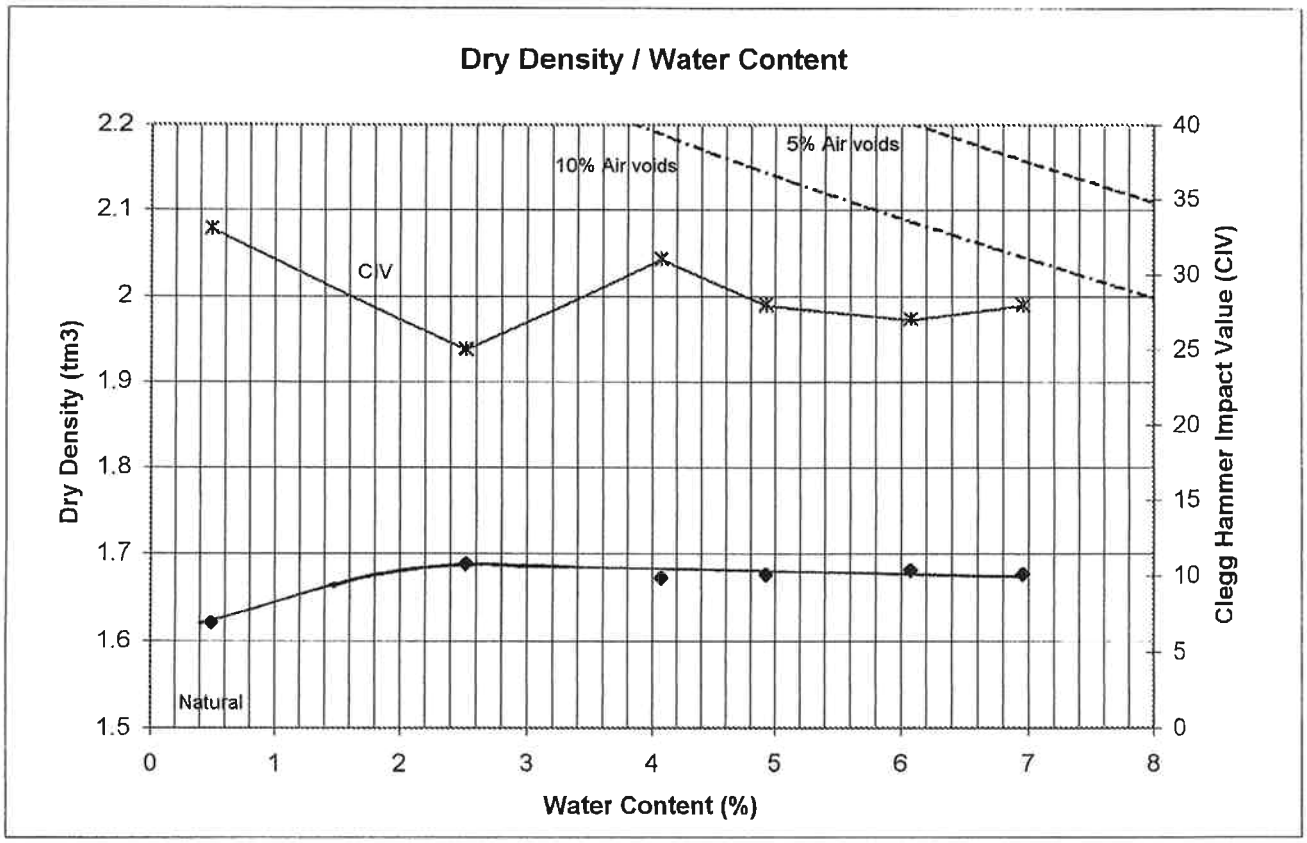


Maximum Dry Density :	**1.92**	t/m^3	Optimum Water Content :	**3.6**	%
Natural Water Content :	1.1	%			
Solid Density of Soil :	2.7	t/m^3	(Assumed)		
Description of Soil :	Millings				
Fraction of soil tested :	Passing 19mm sieve		History of sample :	Wet up	
Comments :	-				

Tested By:	RC	Date :	23.02.05
Calculated By :	DJC	Date :	03.03.05
Checked By :	RC	Date :	15-3-05
Approved Signatory :		Date :	15-3-05

DETERMINATION OF THE DRY DENSITY / WATER CONTENT RELATIONSHIP
NEW ZEALAND STANDARD COMPACTION
TEST METHOD NZS 4402 : 1986 TEST 4.1.1

Job:	Transfund Asphalt Milling Project		
Date of order:	20.1.05	Sample No.:	117BF
Sample method:	NZS 4407:1991:2.4.6.2.1	Sample Origin :	Surge (A)
Sampled By :	GC	Sample Date :	01.02.05

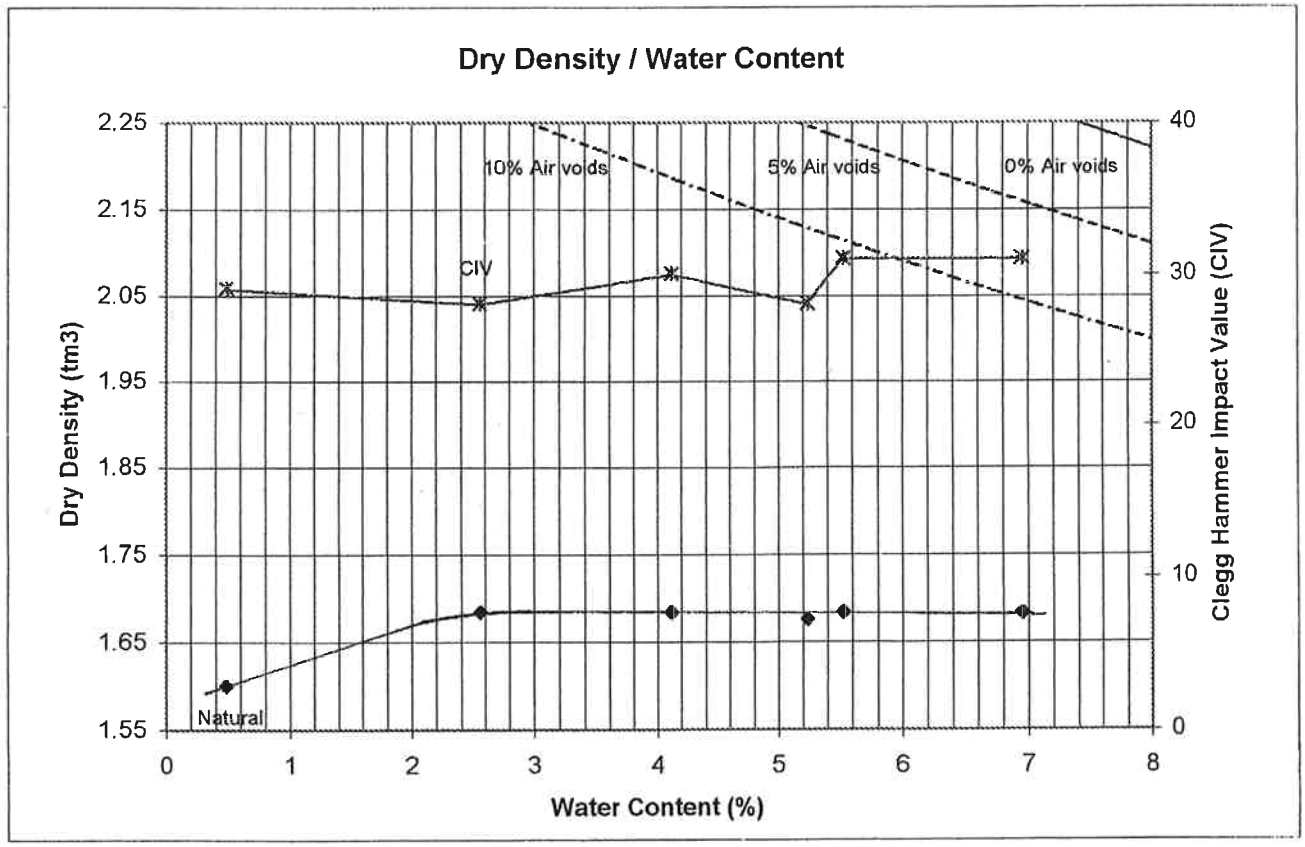


Maximum Dry Density :	1.69	t/m^3	Optimum Water Content :	2.6	%
Natural Water Content :	0.5	%			
Solid Density of Soil :	2.7	t/m^3	(Assumed)		
Description of Soil :	Surge				
Fraction of soil tested :	Passing 19mm sieve		History of sample :	Wet up	
Comments :	Due to nature of the material we were unable to obtain a normal curve				

Tested By:	JM	Date :	25.02.05
Calculated By :	RC	Date :	01.03.05
Checked By :		Date :	15-3-05
Approved Signatory :		Date :	15-3-05

DETERMINATION OF THE DRY DENSITY / WATER CONTENT RELATIONSHIP
NEW ZEALAND STANDARD COMPACTION
TEST METHOD NZS 4402 : 1986 TEST 4.1.1

Job:	Transfund Asphalt Milling Project		
Date of order:	20.1.05	Sample No.:	118BF
Sample method:	NZS 4407:1991:2.4.6.2.1	Sample Origin :	Surge (B)
Sampled By :	GC	Sample Date :	1.2.05



Maximum Dry Density :	1·68	t/m³	Optimum Water Content :	2·8	%
Natural Water Content :	0.5	%			
Solid Density of Soil :	2.7	t/m³	(Assumed)		
Description of Soil :	Surge				
Fraction of soil tested :	Passing 19mm sieve		History of sample :	Wet up	
Comments :	Due to the nature of the material we were unable to obtain a normal curve				

Tested By:	JM	Date :	25.02.05
Calculated By :	RC	Date :	01.03.05
Checked By :	EC	Date :	15.3.05
Approved Signatory :		Date :	15.3.05

DETERMINATION OF THE PLASTICITY INDEX
TEST METHOD NZS 4402 : 1986 TEST 2.2, 2.3 & 2.4

Job: Transfund Asphalt Milling Project
Date of order: 20.01.05
Sample method: NZS 4407 : 1991 : 2.4.6.2.1
Sampled By: GC

Sample origin: see below
Sample Description: see below
Date: 01.02.05

Test Details :

Test performed on : fraction passing 0.425mm sieve
History : Natural

Sample No.	Location	Sample description	Liquid Limit	Plastic Limit	Plasticity Index	Natural Water Content (%)
115 BF	Millings (A)	Millings	N/A	N/P	N/A	0.6
116 BF	Millings (B)	Millings	N/A	N/P	N/A	1.1
117 BF	Surge (A)	Surge	N/A	N/P	N/A	0.5
118 BF	Surge (B)	Surge	N/A	N/P	N/A	0.5

Comments :

Tested By: RC Date : 23.02 and 04.03.05
Calculated By : RC Date : 23.02 and 04.03.05
Checked By : EC Date : 15-3-05
Approved Signatory : Date : 15-3-05

THE CLAY INDEX
TEST METHOD 4407 : 1991 TEST 3.5

Job :	**Transfund Asphalt Milling Project**		
Date of Order :	20.01.05	Sample Origin :	as below
Sample Description :	as below	Sample Method:	NZS 4407 : 1991 : 2.4.6.2.1
Sampled By:	GC	Sample Date :	01.02.05

Test Details :

Sample History :	Air dried
Sample Source :	Natural fines

Test Results :

Sample No.	Sample Location	Clay Index
115 BF	Millings (A)	1.2
116 BF	Millings (B)	1.4
117 BF	Surge (A)	* N/A
118 BF	Surge (B)	* N/A

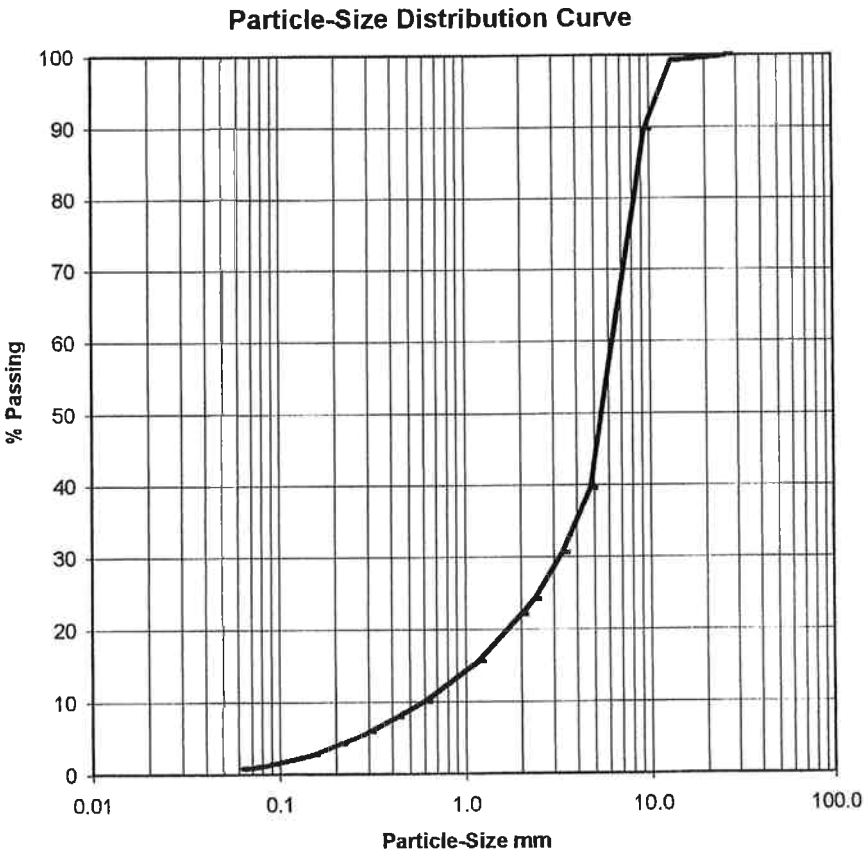
Comments : * This test is not applicable to these samples as no material passing 75micron sieve could be obtained or the fines were absorbed by bitumenous material present

Tested By :	RC	Date :	24.02 and 04.03.05
Calculated By :	RC	Date :	24.02 and 04.03.05
Checked By :	RC.	Date :	15.3.05.
Approved Signatory :		Date :	15.3.05

PARTICLE SIZE DISTRIBUTION
SUBSIDIARY METHOD BY DRY SIEVING
TEST METHOD NZS 4407 : 1991 TEST 3.8.2

Job :	**Transfund Asphalt Milling Project**		
Date of Order :	20.01.05	Sample No :	115 BF
Sample Description :	Milled Asphalt	Sample Origin :	Millings (A)
Sample Method :	NZS 4407 : 1991 : 2.4.6.2.	Sample History :	Air dried
Sampled By :	GC	Sample Date :	01.02.05

Sieve (mm)	Test Result % Passing	Standard Spec. Lower	Upper
26.5	100		
19.0	100		
13.2	99		
9.50	90		
4.75	39		
3.35	31		
2.36	24		
2.00	22		
1.18	16		
0.600	10		
0.425	8		
0.300	6		
0.212	4		
0.150	3		
0.090	1		
0.075	1		
0.063	1		



Percentage Loss : 0.2% obtained by weighing

Comments :

Results were obtained from an air dried test sample

Tested By :	JM	Date :	03.03.05
Calculated By :	JM	Date :	03.03.05
Checked By :	EC	Date :	15.3.05
Approved Signatory :		Date :	15.3.05

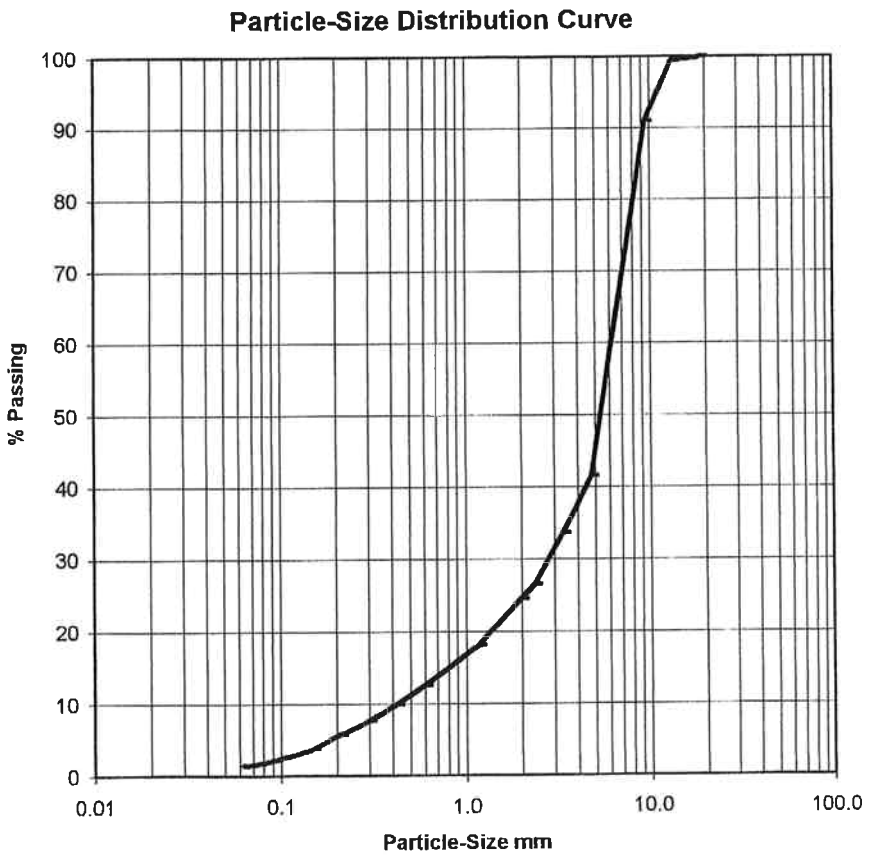
PARTICLE SIZE DISTRIBUTION
SUBSIDIARY METHOD BY DRY SIEVING
TEST METHOD NZS 4407 : 1991 TEST 3.8.2

Job : **Transfund Asphalt Milling Project**

Date of Order : 20.01.05
Sample Description : Milled Asphalt
Sample Method : NZS 4407 : 1991 : 2.4.6.2.1
Sampled By : GC

Sample No : 116 BF
Sample Origin : Millings (B)
Sample History : Air dried
Sample Date : 01.02.05

Sieve (mm)	Test Result % Passing	Standard Spec. Lower	Standard Spec. Upper
19.0	100		
13.2	100		
9.50	91		
4.75	42		
3.35	34		
2.36	27		
2.00	25		
1.18	18		
0.600	13		
0.425	10		
0.300	8		
0.212	6		
0.150	4		
0.090	2		
0.075	2		
0.063	1		



Percentage Loss : 0.2% obtained by weighing

Comments :

Results were obtained from an air dried test sample

Tested By : JM Date : 02.03.05
Calculated By : JM Date : 02.03.05
Checked By : Date : 15.3.05
Approved Signatory : Date : 15.3.05

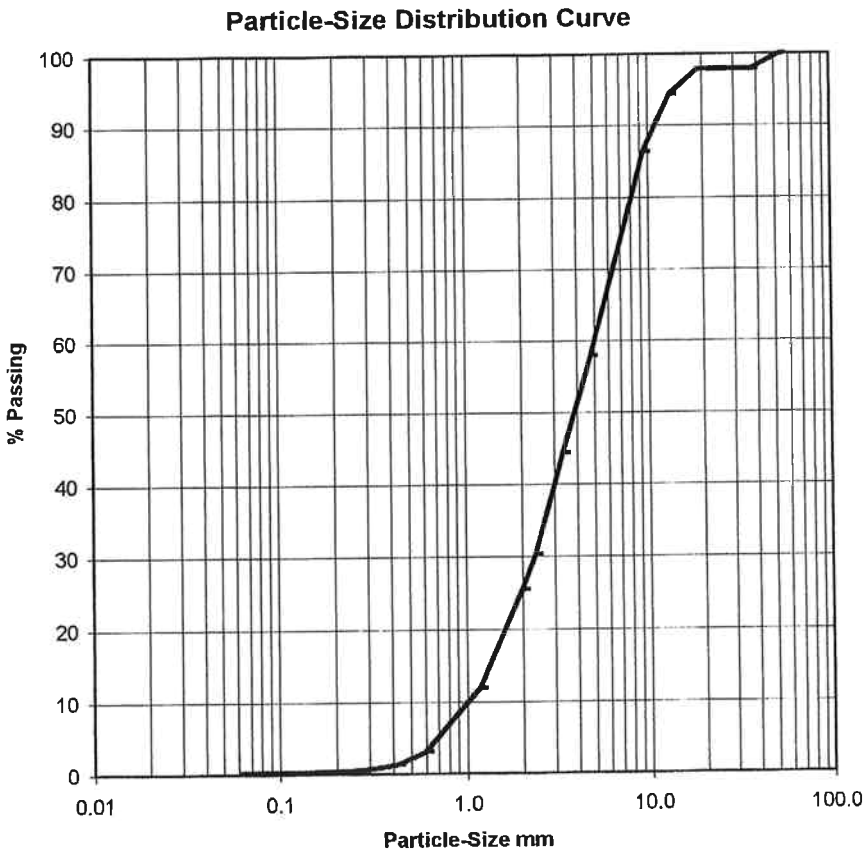
PARTICLE SIZE DISTRIBUTION
SUBSIDIARY METHOD BY DRY SIEVING
TEST METHOD NZS 4407 : 1991 TEST 3.8.2

Job : **Transfund Asphalt Milling Project**

Date of Order : 20.01.05
Sample Description : Surge
Sample Method : NZS 4407 : 1991 : 2.4.6.2.1
Sampled By : GC

Sample No : 117 BF
Sample Origin : Surge (A)
Sample History : Air dried
Sample Date : 01.02.05

Sieve (mm)	Test Result % Passing	Standard Spec. Lower	Standard Spec. Upper
53.0	100		
37.5	98		
26.5	98		
19.0	98		
13.2	94		
9.50	86		
4.75	58		
3.35	44		
2.36	30		
2.00	26		
1.18	12		
0.600	3		
0.425	1		
0.300	0.7		
0.212	0.4		
0.150	0.3		
0.090	0.3		
0.075	0.3		
0.063	0.3		



Percentage Loss : 0.3% obtained by weighing

Comments :

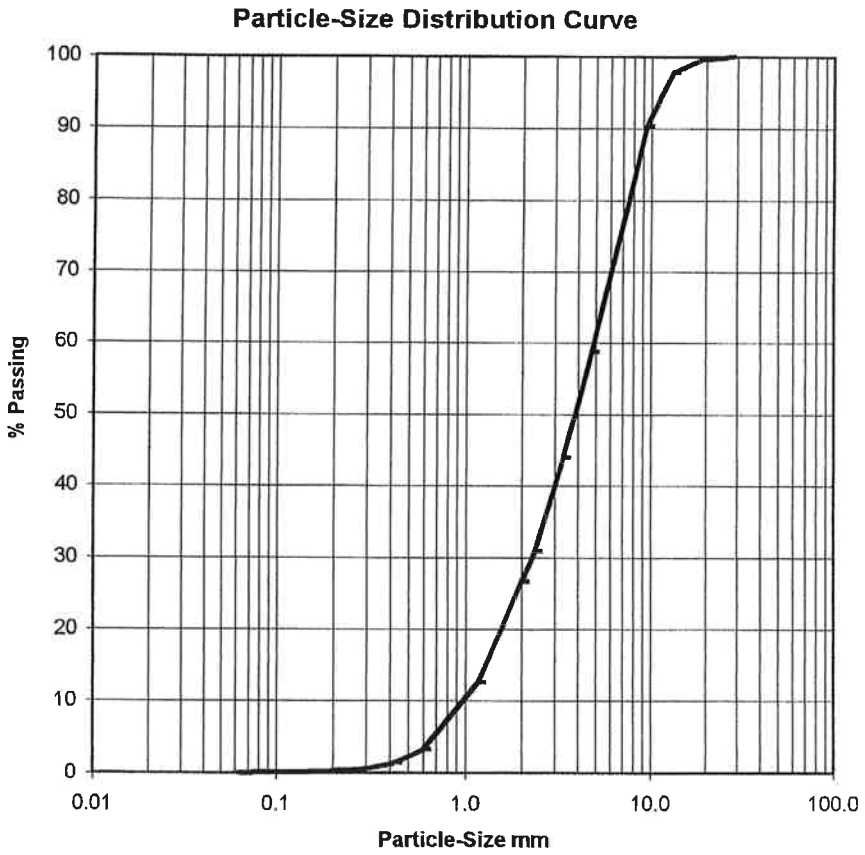
Results were obtained from an air dried test sample

Tested By : **RC** Date : 08.03.05
Calculated By : **TB** Date : 09.03.05
Checked By : EC Date : 15-3-05
Approved Signatory : Date : 15-3-05

PARTICLE SIZE DISTRIBUTION
SUBSIDIARY METHOD BY DRY SIEVING
TEST METHOD NZS 4407 : 1991 TEST 3.8.2

Job :	**Transfund Asphalt Milling Project**		
Date of Order :	20.01.05	Sample No :	118 BF
Sample Description :	Surge	Sample Origin :	Surge (B)
Sample Method :	NZS 4407 : 1991 : 2.4.6.2.1	Sample History :	Air dried
Sampled By :	GC	Sample Date :	01.02.05

Sieve (mm)	Test Result % Passing	Standard Spec. Lower	Standard Spec. Upper
26.5	100		
19.0	100		
13.2	98		
9.50	90		
4.75	59		
3.35	44		
2.36	31		
2.00	27		
1.18	13		
0.600	3		
0.425	1		
0.300	0.7		
0.212	0.3		
0.150	0.2		
0.090	0.1		
0.075	0.0		
0.063	0.0		



Percentage Loss : 0.0% obtained by weighing

Comments :

Results were obtained from an air dried test sample

Tested By :	**JM**	Date :	07.03.05
Calculated By :	**TB**	Date :	09.03.05
Checked By :		Date :	15.3.05
Approved Signatory :		Date :	15.3.05

Laboratory test reports for samples from Works, Fulton Hogan, Higgins and Blacktop, carried out by Bitumen & Pavement Ltd:

Binder content
Aggregate grading

BITUMEN & PAVEMENT LIMITED
Tel: (09) 291 2060 Fax (09) 291 2066 Email: info@bitpave.co.nz
P.O. Box 67044, BAMC, Auckland 6C Enri Richardson Ave, Meadow, Auckland

LABORATORY REFERENCE NUMBER: 20050201

ASPHALTIC CONCRETE

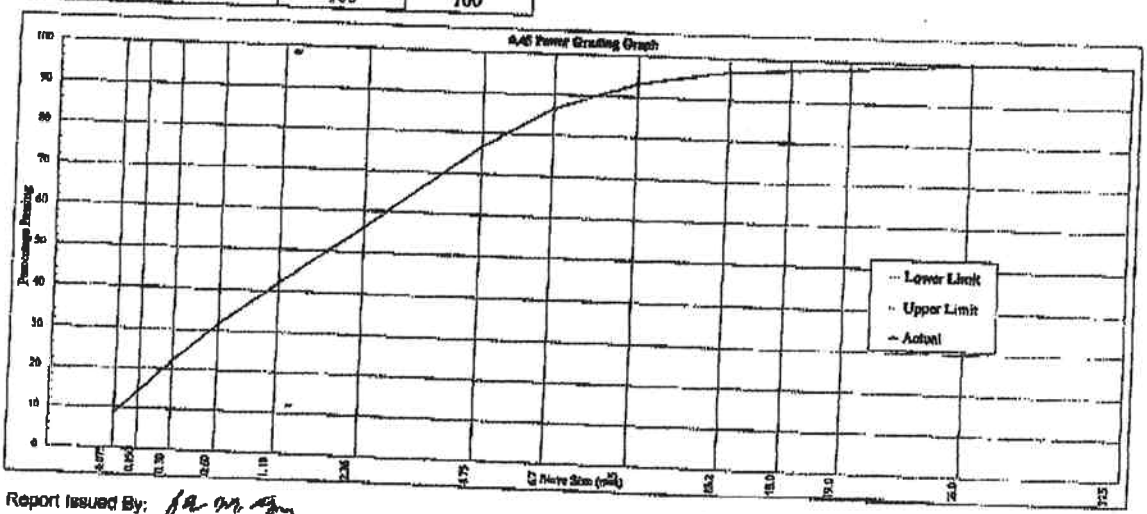
DETERMINATION OF BINDER CONTENT AND AGGREGATE GRADING

CLIENT:	Bartleys Consultants
CLIENT REFERENCE:	Transfund Millings Project
PRODUCT:	Millings 508BF
CONDITION AS RECEIVED:	Natural State
SAMPLED BY:	Civil Labs
DATE SAMPLED:	Not Stated
SAMPLED FROM:	Not Stated
SAMPLING METHOD:	Not Stated, Sample Tested As Received
DATE RECEIVED:	18/03/2005
TESTED BY:	S McCone

Results

Sieve Size (mm)	Passing (%)	Production Limits Lower	Production Limits Upper
37.5	100	100	100
26.5	100	100	100
19.0	98	100	100
13.2	97	100	100
9.5	93	100	100
6.7	87	100	100
4.75	77	100	100
2.36	56	100	100
1.18	42	100	100
0.600	32	100	100
0.300	22	100	100
0.150	14	100	100
0.075	9	100	100

Total Binder Content (%) :	4.5



Report Issued By:

Date: 21/3/05

Approved Signatory:

Designation: Laboratory Manager

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

BITUMEN & PAVEMENT LIMITED

Tel: (09) 281 2586 Fax: (09) 281 2699 Email: info@bitpave.co.nz
P.O. Box 97044, SAMC, Auckland 8C Earl Richardson Ave, Manukau, Auckland

LABORATORY REFERENCE NUMBER: 2005/0200

ASPHALTIC CONCRETE

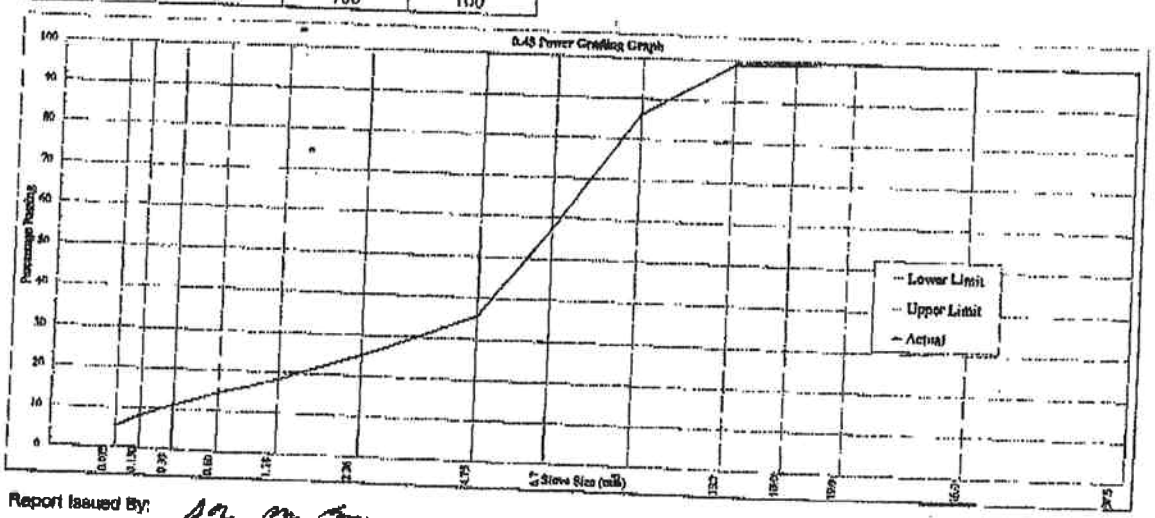
DETERMINATION OF BINDER CONTENT AND AGGREGATE GRADING

CLIENT:	Bartleys Consultants
CLIENT REFERENCE:	Transfund Millings Project
PRODUCT:	Millings 433BF
CONDITION AS RECEIVED:	Natural State
SAMPLED BY:	Civil Labs
DATE SAMPLED:	Not Stated
SAMPLED FROM:	Not Stated
SAMPLING METHOD:	Not Stated, Sample Tested As Received
DATE RECEIVED:	16/03/2005
TESTED BY:	S McCone

Results

Sieve Size (mm)	Passing (%)	Production Limits Lower	Production Limits Upper
37.5	100	100	100
26.5	100	100	100
19.0	100	100	100
13.2	99	100	100
9.5	86	100	100
6.7	57	100	100
4.75	36	100	100
2.36	25	100	100
1.18	18	100	100
0.600	14	100	100
0.300	11	100	100
0.150	8	100	100
0.075	5	100	100

Total Binder Content (%) :	5.0



Report Issued By: [signature]

Date: 21/3/05

Approved Signatory: [signature]

Designation: Laboratory Manager

bindercontent 1 10/04

BITUMEN & PAVEMENT LIMITED

Tel: (09) 361 2000 Fax: (09) 361 2020 Email: info@bitupave.co.nz
P.O. Box 97044, SAMC, Auckland 6C Earl Richardson Ave, Manukau, Auckland

LABORATORY REFERENCE NUMBER: 2005/0202

ASPHALTIC CONCRETE

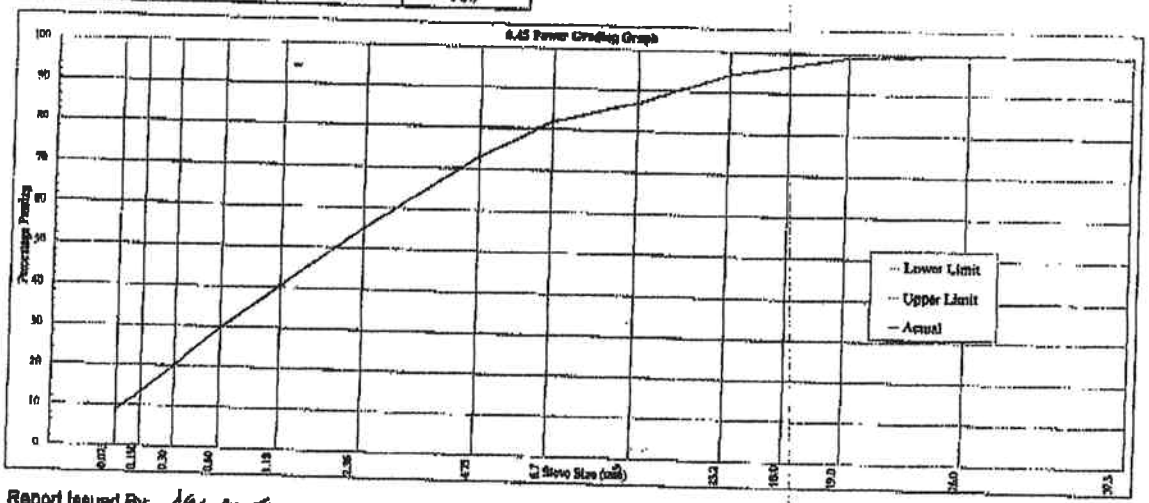
DETERMINATION OF BINDER CONTENT AND AGGREGATE GRADING

CLIENT:	Bartleys Consultants
CLIENT REFERENCE:	Transfund Millings Project
PRODUCT:	Millings 5mmSF
CONDITION AS RECEIVED:	Natural State
SAMPLED BY:	Civil Labs
DATE SAMPLED:	Not Stated
SAMPLED FROM:	Not Stated
SAMPLING METHOD:	Not Stated, Sample Tested As Received
DATE RECEIVED:	18/03/2005
TESTED BY:	S McCone

Results

Sieve Size (mm)	Passing (%)	Production Limits Lower	Production Limits Upper
37.5	100	100	100
26.5	100	100	100
19.0	99	100	100
13.2	94	100	100
9.5	87	100	100
6.7	82	100	100
4.75	73	100	100
2.36	55	100	100
1.18	40	100	100
0.600	30	100	100
0.300	20	100	100
0.150	13	100	100
0.075	9	100	100

Total Binder Content (%) :	5.9



Report Issued By: [signature]

Date: 21/3/05

Approved Signatory: [signature]

Designation: Laboratory Manager

BITUMEN & PAVEMENT LIMITED

Tel: (09) 261 2599 Fax: (09) 261 2698 Email: info@bitupave.co.nz
P.O. Box 97044, BAMC, Auckland 6C Bell Richardson Ave. Manukau, Auckland

LABORATORY REFERENCE NUMBER: 2005/0148

ASPHALTIC CONCRETE

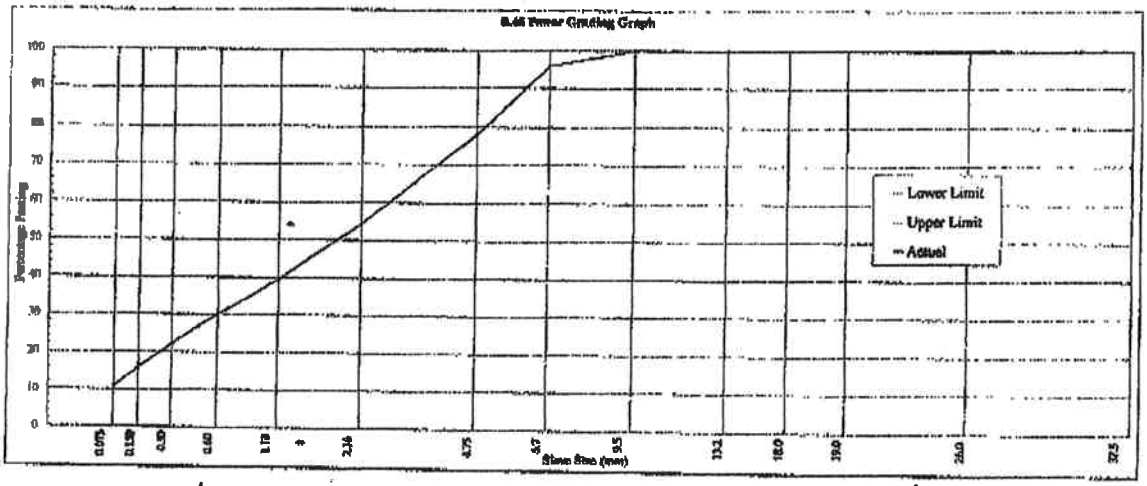
DETERMINATION OF BINDER CONTENT AND AGGREGATE GRADING

CLIENT:	**Bartleys Consultants**
CLIENT REFERENCE:	**Transfund Millings Project**
PRODUCT:	**Millings 7738E**
CONDITION AS RECEIVED:	**Natural State**
SAMPLED BY:	**Civil Labs**
DATE SAMPLED:	**Not Stated**
SAMPLED FROM:	**Not Stated**
SAMPLING METHOD:	**Not Stated, Sample Tested As Received**
DATE RECEIVED:	**24/02/2005**
TESTED BY:	**S McCone**

Results

Sieve Size (mm)	Passing (%)	Production Limits Lower	Production Limits Upper
37.5	100	100	100
26.5	100	100	100
19.0	100	100	100
13.2	100	100	100
9.5	100	100	100
6.7	96	100	100
4.75	78	100	100
2.36	54	100	100
1.18	39	100	100
0.600	30	100	100
0.300	22	100	100
0.150	16	100	100
0.075	11	100	100

Total Binder Content (%) :	4.1



Report Issued By: [signature]

Date: 28/2/05

Approved Signatory: [signature]

Designation: Laboratory Manager

BITUMEN & PAVEMENT LIMITED

Tel: (09) 261 2999 Fax: (09) 261 2998 Email: info@bitpave.co.nz
P.O. Box 97044, SAMC, Auckland 80 Earl Richardson Ave, Manukau, Auckland

LABORATORY REFRENCE NUMBER: 2005/0147

ASPHALTIC CONCRETE

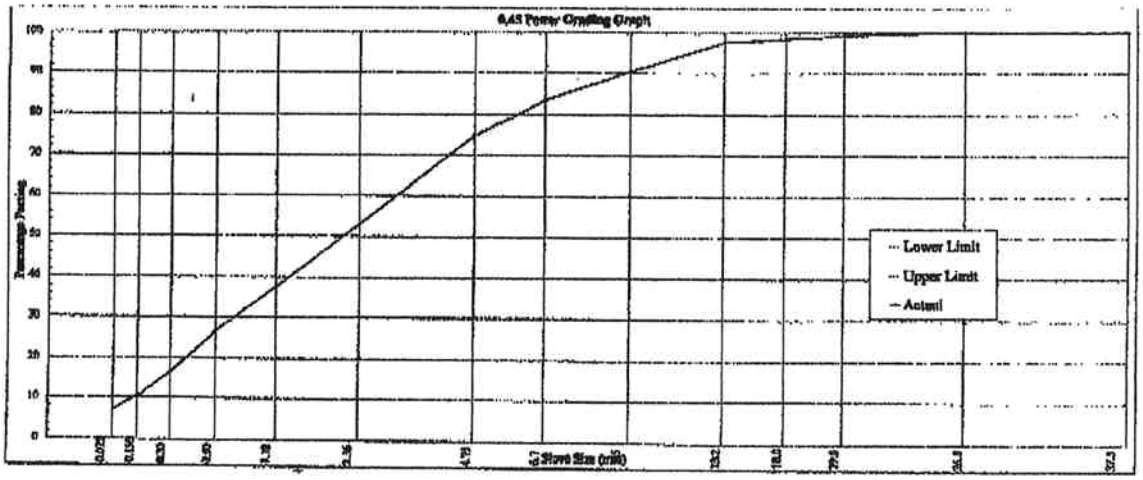
DETERMINATION OF BINDER CONTENT AND AGGREGATE GRADING

CLIENT:	Bartleys Consultants
CLIENT REFERENCE:	Transfund Millings Project
PRODUCT:	Millings 11BF
CONDITION AS RECEIVED:	Natural State
SAMPLED BY:	Civil Labs
DATE SAMPLED:	Not Stated
SAMPLED FROM:	Not Stated
SAMPLING METHOD:	Not Stated, Sample Tested As Received
DATE RECEIVED:	24/02/2005
TESTED BY:	S McCone

Results

Sieve Size (mm)	Passing (%)	Production Limits Lower	Production Limits Upper
37.5	100	100	100
26.5	100	100	100
19.0	99	100	100
13.2	98	100	100
9.5	90	100	100
6.7	83	100	100
4.75	75	100	100
2.36	53	100	100
1.18	38	100	100
0.600	27	100	100
0.300	17	100	100
0.150	10	100	100
0.075	7.0	100	100

Total Binder Content (%) :	4.9



Report Issued By: _____

Date: 28/2/05

Approved Signatory: _____

Designation: Laboratory Manager

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

BITUMEN & PAVEMENT LIMITED

Tel: (09) 281 2699 Fax: (09) 281 2599 Email: info@bitpave.co.nz
P.O. Box 97044, SAMO, Auckland 6C East Richardson Ave, Manukau, Auckland

LABORATORY REFERENCE NUMBER: 2005/0146

ASPHALTIC CONCRETE

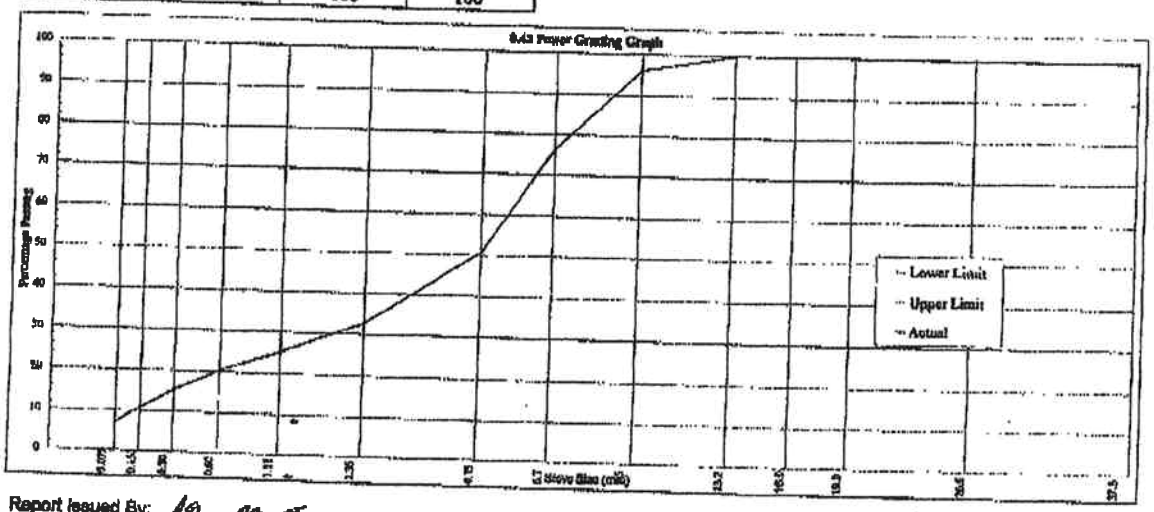
DETERMINATION OF BINDER CONTENT AND AGGREGATE GRADING

CLIENT:	Bartleys Consultants
CLIENT REFERENCE:	Transfund Millings Project
PRODUCT:	Millings 11SBF
CONDITION AS RECEIVED:	Natural State
SAMPLED BY:	Civil Labs
DATE SAMPLED:	Not Stated
SAMPLED FROM:	Not Stated
SAMPLING METHOD:	Not Stated, Sample Tested As Recieved
DATE RECEIVED:	24/02/2005
TESTED BY:	S McCone

Results

Sieve Size (mm)	Passing (%)	Production Limits Lower	Production Limits Upper
37.5	100	100	100
26.5	100	100	100
19.0	100	100	100
13.2	100	100	100
9.5	96	100	100
6.7	76	100	100
4.75	51	100	100
2.36	33	100	100
1.18	25	100	100
0.600	20	100	100
0.300	16	100	100
0.150	11	100	100
0.075	7.2	100	100

Total Binder Content (%) :	5.3



Report Issued By:

Date: 28/2/05

Approved Signatory:

Designation: Laboratory Manager

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

Laboratory test reports for Repeated Load Triaxial permanent strain test

for Works processed samples,
Fulton Hogan processed samples,
Blacktop unprocessed samples,

carried out by Opus International Consultants Ltd,
Central Laboratories

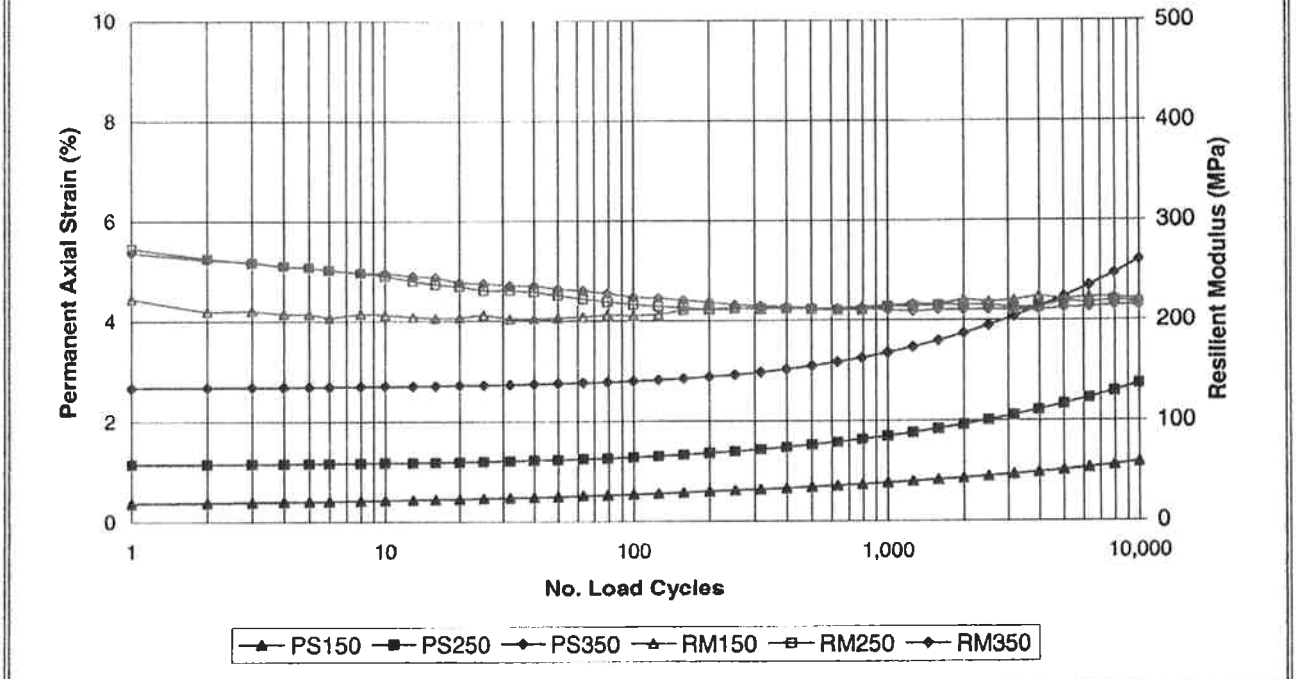
REPEATED LOAD TRIAXIAL
Permanent Strain Test

OPUS
INTERNATIONAL CONSULTANTS

Project:	**Transfund Research - Milled Asphalt RLT Testing**	**Report No:**	**522516.00**
Client:	**Bartley Consultants Ltd**	**Sample No:**	**2-05/70**
Client ref:	**0406**	**Project No:**	**522516.00**

Sampled by:	**Civil Lab**	Date sampled:	1.2.05
Source:	**Works Processed (115/116BF)**	Sampling method:	NZS 4407: 1991 2.4.6.2.1
Description:	Milled Asphalt		

Test sample preparation:		Sample diameter:	150mm
Compaction method:	Vibrating hammer, 6 layers	Sample height:	295mm
Comp. water content:	4.0% (OWC)	Date tested:	7-9.6.05
Comp. dry density:	1.91t/m³ (100% NZ Std compaction)	Curing time:	n/a
Test conditions:	OWC, consolidated, drained, 3 stage	Confining stress:	50 kPa
		Deviator stress:	150,250,350 kPa
Notes:	10,000 cycles per stage, cummulative strain		



Test method: Load pulse to AS1289.6.8.1: 1995, confining and load stress to client specifications.
Notes: The permanent strain at the first cycle includes consolidation and bedding in of the top cap.

Opus International Consultants Limited
Central Laboratories
Quality Management Systems Certified to ISO 9001

138 Hutt Park Road
PO Box 30 845, Lower Hutt
New Zealand

Telephone +64 4 587 0600
Facsimile +64 4 587 0604
Website www.opus.co.nz

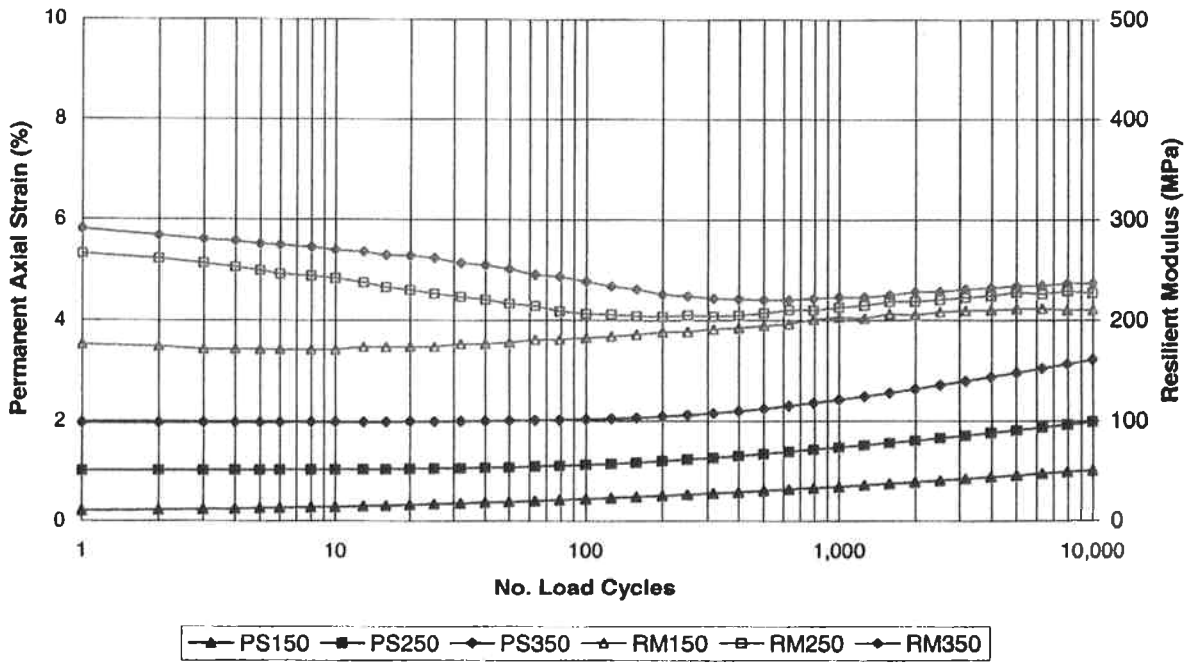
REPEATED LOAD TRIAXIAL
Permanent Strain Test

OPUS
INTERNATIONAL CONSULTANTS

Project:	**Transfund Research - Milled Asphalt RLT Testing**	**Report No:**	**522516.00**
Client:	**Bartley Consultants Ltd**	**Sample No:**	**2-05/71**
Client ref:	**0406**	**Project No:**	**522516.00**

Sampled by:	**Civil Lab**	Date sampled:	21.1.05
Source:	**Fulton Hogan Processed (773BE)**	Sampling method:	NZS 4407: 1991 2.4.6.1.1
Description:	Milled Asphalt		

Test sample preparation:		Sample diameter:	150mm
Compaction method:	Vibrating hammer, 6 layers	Sample height:	295mm
Comp. water content:	9.0% (OWC)	Date tested:	31.5-2.6.05
Comp. dry density:	2.11t/m³ (100% NZ Std compaction)	Curing time:	n/a
Test conditions:	OWC, consolidated, drained, 3 stage	Confining stress:	50 kPa
		Deviator stress:	150,250,350 kPa
Notes:	10,000 cycles per stage, cummulative strain		



Test method: Load pulse to AS1289.6.8.1: 1995, confining and load stress to client specifications.
Notes: The permanent strain at the first cycle includes consolidation and bedding in of the top cap.

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Website www.opus.co.nz

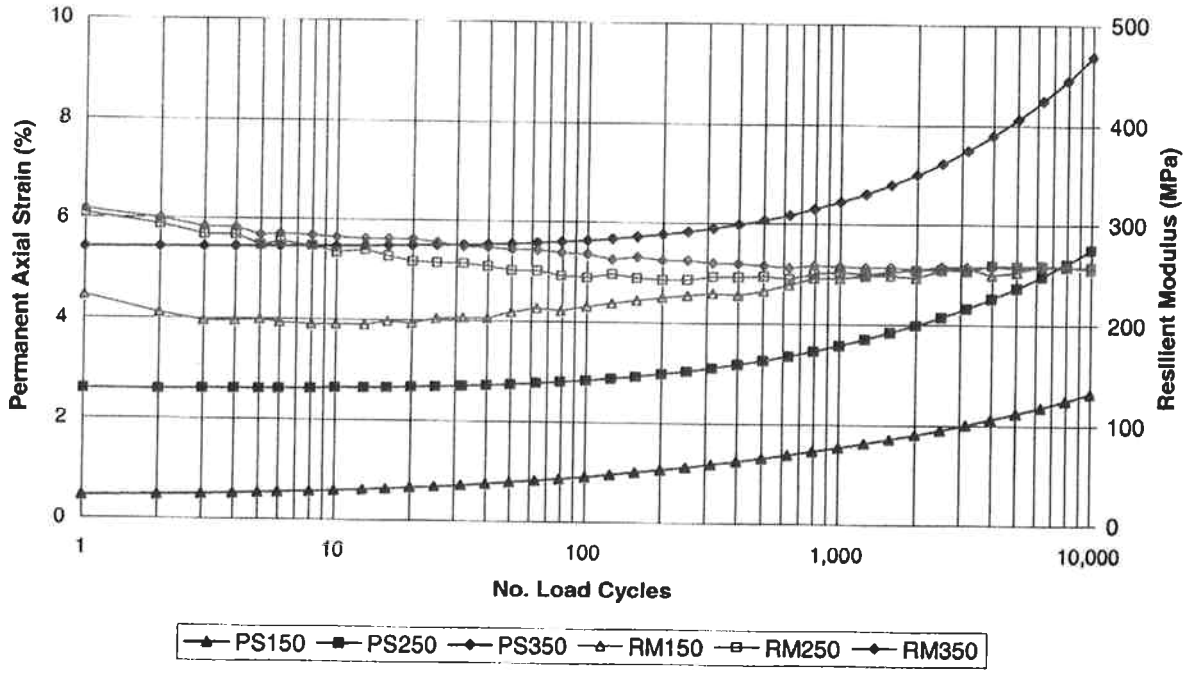
REPEATED LOAD TRIAXIAL
Permanent Strain Test

OPUS
INTERNATIONAL CONSULTANTS

Project:	**Transfund Research - Milled Asphalt RLT Testing**	**Report No:**	**522516.00**
Client:	**Bartley Consultants Ltd**	**Sample No:**	**2-05/72**
Client ref:	**0406**	**Project No:**	**522516.00**

Sampled by:	**Civil Lab**	Date sampled:	9.3.05
Source:	**Blacktop unprocessed (568BF)**	Sampling method:	NZS 4407: 1991 2.4.6.2.1
Description:	Milled Asphalt		

Test sample preparation:		Sample diameter:	150mm
Compaction method:	Vibrating hammer, 6 layers	Sample height:	295mm
Comp. water content:	5.5% (OWC)	Date tested:	15-17.6.05
Comp. dry density:	1.88t/m³ (100% NZ Std compaction)	Curing time:	n/a
Test conditions:	OWC, consolidated, drained, 3 stage	Confining stress:	50 kPa
		Deviator stress:	150,250,350 kPa
Notes:	10,000 cycles per stage, cummulative strain		



Test method: Load pulse to AS1289.6.8.1: 1995, confining and load stress to client specifications.
Notes: The permanent strain at the first cycle includes consolidation and bedding in of the top cap.

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