

PART TEN

MATERIAL SPECIFICATION

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10.1 GENERAL

- a) Asphalt concrete shall comply with TNZ Specification M/10P and be placed and compacted in accordance with TNZ P/9.
- b) Basecourse shall comply with TNZ M/4 and shall be placed and compacted in accordance with TNZ B/2 and as set out in table 6.5.3.
- c) All granular backfill shall comply with these specifications and be placed and compacted in accordance with TNZ B/2 and TNZ F/1 Specifications and as set out in table 6.5.3.
- d) Membrane seal coats shall comply with TNZ P/3 Specification.
- e) Grade 4 Chip shall comply with TNZ M/6 Specification.
- f) All concrete work shall comply with NZS/3109.
- g) Interlocking paving shall comply with NZS/3106.
- h) Further information on Transit New Zealand's material specification can be obtained on Transit New Zealand's web page http://www.transit.govt.nz/technical_information.

10.2 MATERIAL LISTING

The following material specifications relate to all aggregate material approved by the RCA for use as trench backfill products. The following materials are covered by this specification:

- GAP 150 - GAP 100 - GAP 65 - GAP 40 - GAP 20

The aggregate sourced to produce the above products shall be of the following mineralogy:

- a) Unweathered sedimentary rock of the greywacke group.
- b) Basalt.

All rock material used shall be clean, free from clay, all organic matter and other deleterious materials.

10.2.1 Additional Specifications

The following TNZ specifications relating to aggregate shall be met as appropriate:

- a) TNZ M/4
- b) TNZ M/3 notes

10.2.2 General Material Properties

The aggregate source used as a supply for the products covered by this specification shall have the following material properties:

- a) Sand Equivalent, based on NZS: 4402 of not less than 40.
- b) Clay Index, based on NZS: 4402 of not greater than 3.
- c) Plasticity Index, based on NZS:4402 of between 9 - 15%
- d) The parent aggregate shall have a crushing resistance, based on NZS: 3111:1980 of not less than 125kN.

10.2.3 Grading Curves

The grading curves, which follow, define the acceptable limits of the grading envelope for each product.

10.2.4 GAP 150

The product termed GAP 150 shall meet the following grading criteria.

Figure 1.

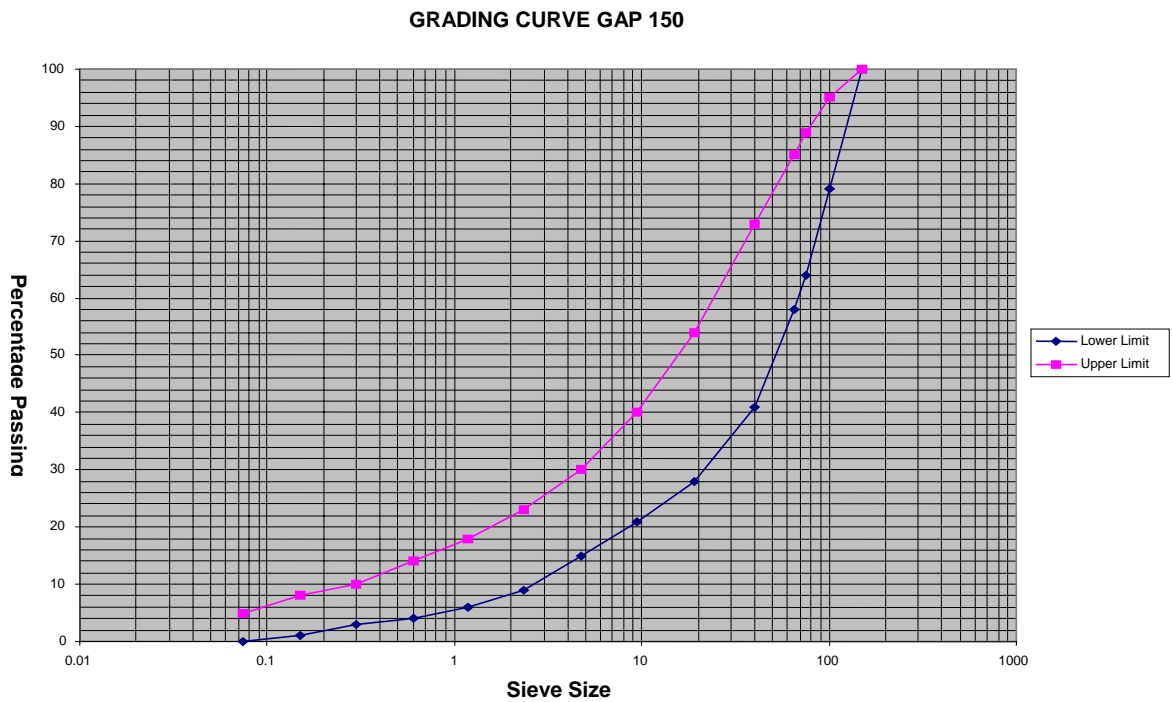


Figure 1 is produced from the following.

GAP 150 Aperture size (mm)	Percentage Passing.	
	Lower Limit	Upper Limit
150	100	100
100	79	95
75	64	89
65	58	85
40	41	73
19	28	54
9.5	21	40
4.75	15	30
2.36	9	23
1.18	6	18
0.6	4	14
0.3	3	10
0.15	1	8
0.075	0	5

10.2.5 GAP 100

The product termed GAP 100 shall meet the following grading criteria.

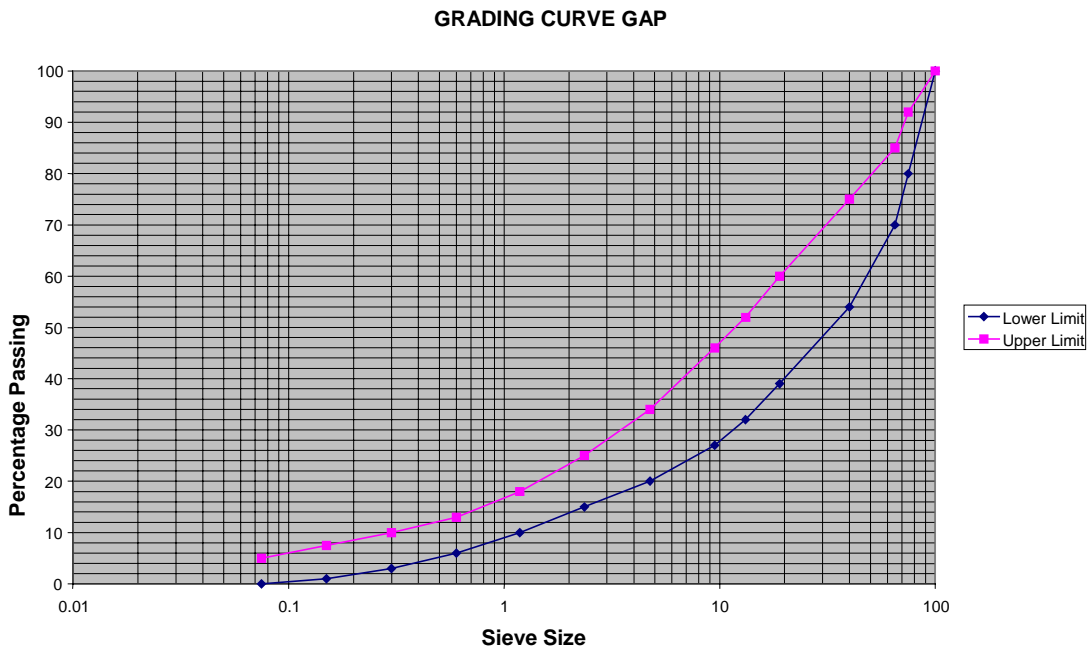


Figure 2.

Figure 2 is produced from the following.

GAP 100 Aperture size (mm)	Percentage Passing.	
	Lower Limit	Upper Limit
100	100	100
75	80	92
65	70	85
40	54	75
19	39	60
13.2	32	52
9.5	27	46
4.75	20	34
2.36	15	25
1.18	10	18
0.6	6	13
0.3	3	10
0.15	1	7.5
0.075	0	5

10.2.6 GAP 65

The product termed GAP 65 shall meet the following grading criteria.

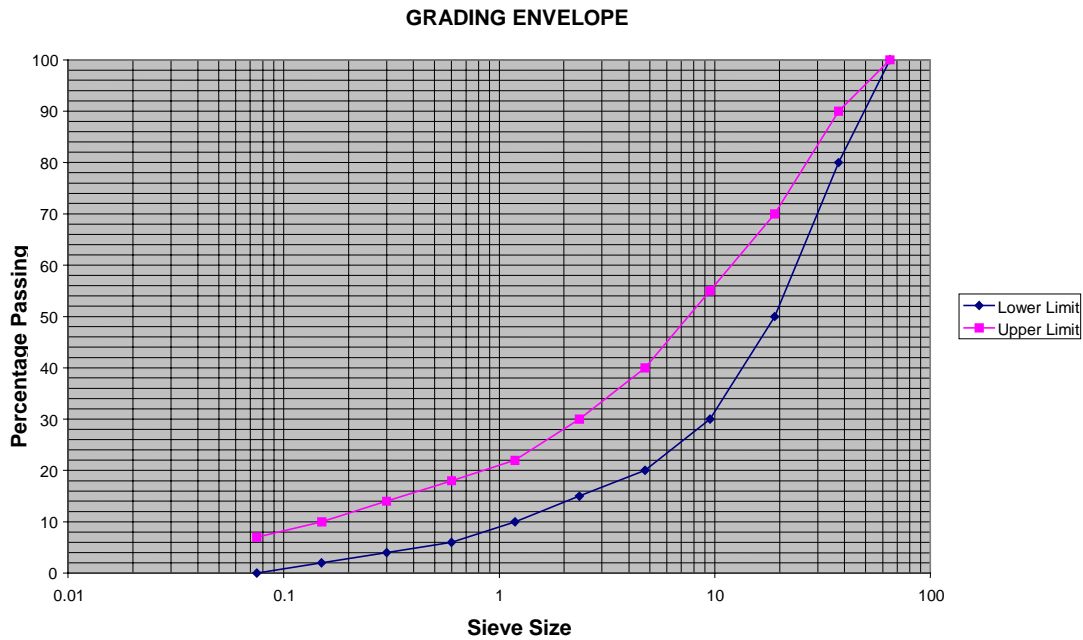


Figure 3.

Figure 3 is produced from the following.

GAP 65 Aperture size (mm)	Percentage Passing	
	Lower Limit	Upper Limit
65	100	100
37.5	80	90
19	50	70
9.5	30	55
4.75	20	40
2.36	15	30
1.18	10	22
0.6	6	18
0.3	4	14
0.15	2	10
0.075	0	7

10.2.7 GAP 40

The product termed GAP 40 shall meet the following grading criteria.

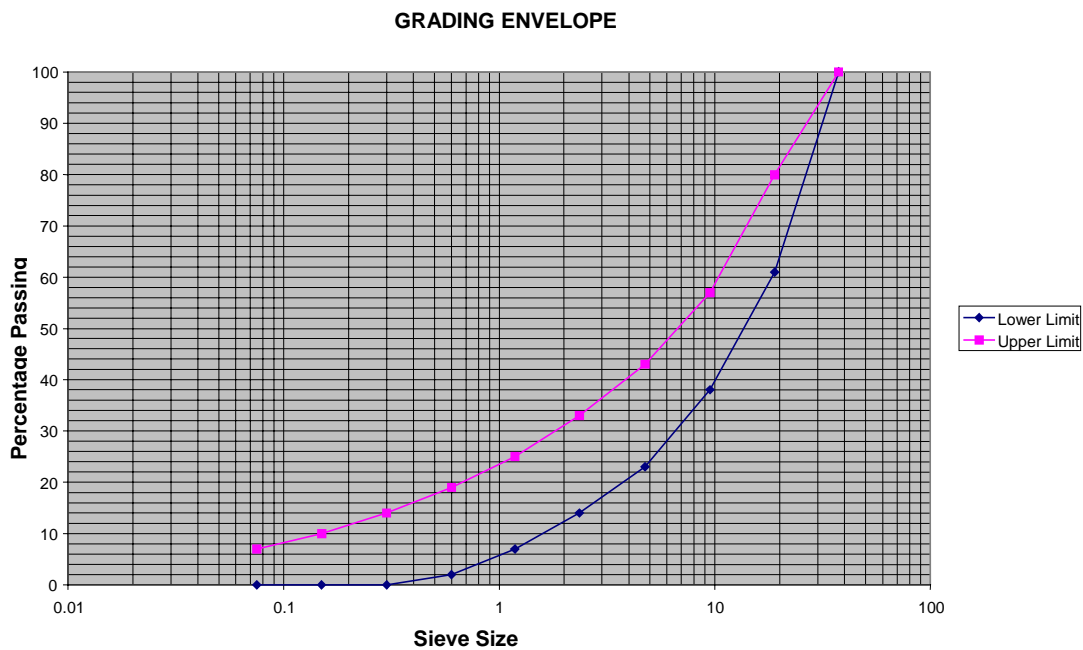


Figure 4.

Figure 4 is produced from the following.

GAP 40 Aperture size (mm)	Percentage Passing	
	Lower Limit	Upper Limit
37.5	100	100
19	61	80
9.5	38	57
4.75	23	43
2.36	10	33
1.18	7	25
0.6	2	19
0.3	0	14
0.15	0	10
0.075	0	7

10.2.8 GAP 20

The product termed GAP 20 shall meet the following grading criteria.

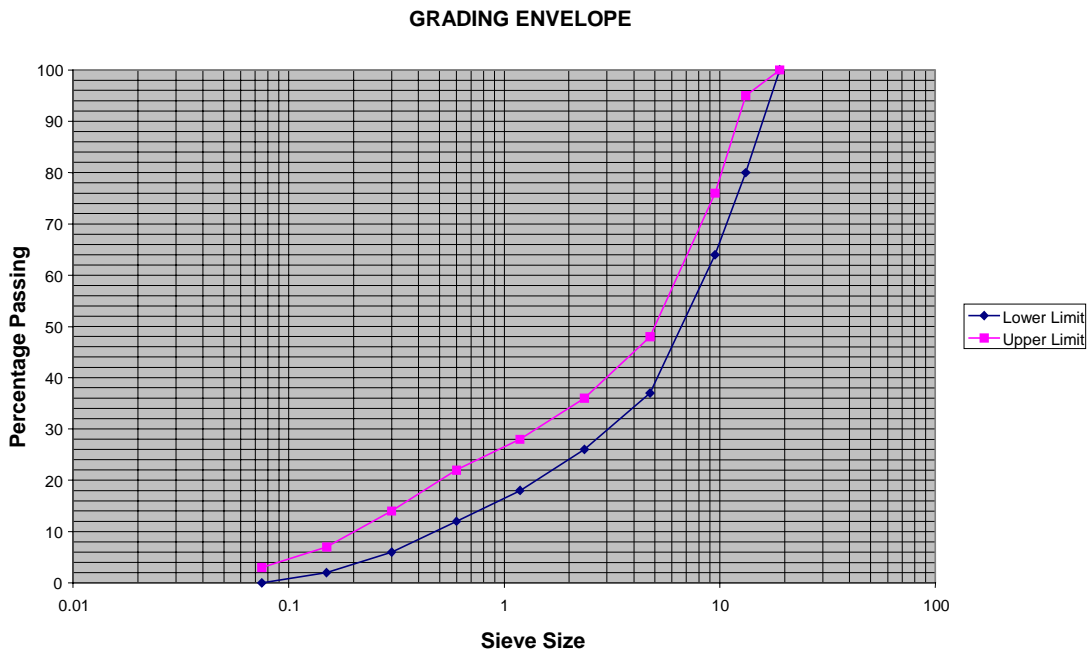


Figure 5.

Figure 5, above is derived from the following.

GAP 20 Aperture size (mm)	Percentage Passing	
	Lower Limit	Upper Limit
19	100	100
13.2	80	95
9.5	64	76
4.75	37	48
2.36	26	36
1.18	18	28
0.6	12	22
0.3	6	14
0.15	2	7
0.075	0	3