SECTION 304 ‑ UNBOUND FLEXIBLE PAVEMENT CONSTRUCTION‑

##This section cross-references Sections 173, 175, 180, 204, 310, 801, 811, 812, 813 and 818.

If any of the above sections are relevant, they should be included in the specification.

If any of the above sections are not included in the specification, all references to those sections should be struck out, ensuring that the remaining text is still coherent:

304.01 DESCRIPTION

This section covers the requirements for the placement of gravel, sand, soft or ripped rock, crushed rock, or crushed scoria pavement materials, for the construction of unbound flexible pavement layers.

304.02 STANDARDS

Any reference made to ‘VicRoads’ or ‘Department of Transport’ are taken to mean Department of Transport and Planning.

Documents referred to in this section are listed in Table 304.021.

**Table 304.021 Referenced Documents**

|  |  |
| --- | --- |
| **Austroads** | |
| ATM 453 | Austroads Test Method - Surface deviation using a straightedge |
| **Department of Transport & Planning** | |
| RC 500.02 | Registration of Crushed Rock Mixes |
| RC 500.05 | Acceptance of Field Compaction |
| RC 500.16 | Selection of Test Methods for Testing of Materials and Work |
| RC 316.00 | Density Ratio and Moisture Ratio - Lot Characteristics |
| RC316.10 | Selection of Test Sites Within a Test Lot (random stratified sampling method) |
| RC 423.02 | Measurement of Surface Levels of Pavement Layers (random site selection) |
| RC 423.02B | Selection of Random Sites For Surface Levels of Pavement Layers |
| **American Public Health Association** | |
| APHA 2510 | Standard Methods For The Examination Of Water And Wastewater: Conductivity |

Section 175 details the revision dates of the relevant references in this section.

304.03 DEFINITIONS

**Unbound Flexible Pavement**

A pavement consisting of an unbound granular base and subbase materials, with a thin asphalt or sprayed bituminous seal surfacing.

**Pavement Course**

For the purpose of this section, the base, upper subbase and lower subbase shall each be termed a pavement course. A pavement course may comprise one or more layers.

**Base**

One or more layers of material usually constituting the uppermost structural element of a pavement on which the surfacing may be placed, which may be composed of crushed rock, or other materials as specified in Clause 304.04. Typically, the base is the top 200 mm of the pavement or the pavement base thickness as specified or shown on the drawings. The base may consist of upper and lower base layers.

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**Subbase**

The pavement material constructed on the subgrade to the underside of the base either for the purpose of making up the additional pavement thickness required, or to provide a working platform. The subbase may be constructed of the same material type or may comprise two different material types as follows:

(a) Upper Subbase – the higher quality material immediately below the base; and

(b) Lower Subbase – the lower quality material immediately above the subgrade.

If only a single layer of subbase is specified or shown on the drawings, the specified requirements for subbase material shall conform to the requirements of an upper subbase material.

**Subgrade**

Subgrade is the trimmed or prepared portion of the formation on which the pavement including shoulders is constructed.

**Segregated Area**

An area of a pavement layer, which does not comply with the grading requirements of Clause 304.11. Typically, this is where the finer material is either not present or has settled to the bottom of the layer leaving the coarser materials at the surface.

304.04 MATERIALS

\*\*\* (a) The Contractor shall be responsible for the procurement of sufficient specified material to complete the work. The Contractor shall supply to the Superintendent details demonstrating compliance of the materials with Section 801 and the following sections as relevant: ##(strikethrough whichever is not relevant):

Section 811 Gravel, Sand and Soft or Ripped Rock for Pavement Base and Subbase

Section 812 Crushed Rock for Pavement Base and Subbase

Section 813 Base and Subbase for Lower Trafficked Roads

Section 818 Crushed Scoria for Pavement Base and Subbase.

Unless otherwise specified, all testing shall be undertaken in accordance with RC 500.16.

Where a crushed product is specified in accordance with Sections 811, 812, 813 and 818, mixes registered by the Department of Transport & Planning (DTP) as ‘General’ shall be used in the construction of roadworks. Mixes registered as ‘Conditional’ may also be used provided the conditions for use are complied with and approved for use by the Superintendent.

Prior to the initial delivery of crushed product to site, the Contractor shall provide test results for grading and Plasticity Index (PI) for the crushed product demonstrating the material complies to the specification and is consistent with the mix design as registered.

(b) Water added to the pavement material shall be clean and substantially free from detrimental impurities such as oils, salts, acids, alkalis and vegetable substances. Water shall contain no greater than 1000 mg/L of suspended solids. Water supplied from sources where dissolved salts are known or likely to be present shall be tested for electrical conductivity prior to use. The electrical conductivity shall not be more than 3500 µS/cm as tested in accordance with APHA 2510. Water sources classified by the relevant Water Authority as potable water shall be exempt from this requirement.

(c) The addition of cementitious material to any pavement material is not permitted.

(d) The pre-compaction gradings of base and subbase materials shall be in accordance with RC 500.02.

304.05 SUBGRADE PREPARATION

Prior to placing subbase material, the Contractor shall provide test results demonstrating that the subgrade has met the requirements of Sections 173 and 204.

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Where the Contractor cannot provide test results to prove the acceptability of the subgrade, the Superintendent reserves the right to direct that no further work continues at that location pending receipt of a test result(s) that establishes that the work is conforming to the specified requirements. The Contractor will have no rights to claim for an extension of time or costs associated with any such direction.

304.06 DELIVERY DOCKETS

Where material is scheduled for measurement by loose volume in delivery vehicles or by mass, a delivery docket for each load shall be issued to the Superintendent at the point of delivery.

Where material is measured by other means and for Lump Sum Contracts, the Contractor shall make delivery dockets available for inspection on request by the Superintendent.

Delivery dockets shall show:

(a) name of the supplier, and location of quarry, pit or plant;

(b) docket number;

(c) name of user;

(d) project name and location (or contract number);

(e) registered number or fleet number of the vehicle;

(f) date and time of loading;

(g) nature and source of material;

(h) empty and loaded masses of the vehicle (where material is scheduled for measurement by mass);

(i) loose volume in delivery vehicle (where material is scheduled for measurement by loose volume);

(j) supplier’s stockpile / lot identification number if applicable; and

(k) legible signature of person receiving the material at the point of delivery.

304.07 CONFORMITY WITH DRAWINGS

All pavement courses shall, after compaction, be finished to smooth and uniform surfaces, free of segregated areas, and conforming to the limits for level, line, grade, thickness and cross section shown on the drawings or as specified.

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**Any material that has been compacted and then trimmed from the compacted surface to conform to the correct level or thickness as shown on the drawings shall not be re-used in the pavement construction without the approval of the Superintendent.**

(a) Width and Alignment

The width of each side of the pavement shall not be less than the specified offset width or more than 50 mm outside the specified offset width when measured at right angles from the centre line or design line.

(b) Surface Level of Pavement Courses

The surface level of the pavement courses shall be measured in accordance with the requirements of Section 173 and every test lot shall meet either Scale A, B or C requirements as specified in Clause 304.14(a).

The maximum lot size for measurement and assessment of surface level shall be 4000 m2 but may be increased to match the maximum lot size for assessment of compaction specified in Table 304.121.

Where pavement is to be constructed to the lip level of kerb and channel, it shall be constructed flush with the lip of the channel or not more than 5 mm above.

(i) Scale A and B Surface Level Requirements

Each level measurement shall be taken at random locations over the area of the lot in accordance with RC 423.02 and RC 423.02B and the number of measurements taken within each lot shall not be less than the number specified in Table 304.071.

The mean and standard deviation of the departures from the design surface level for the pavement courses at their respective levels within each lot shall meet the requirements of Table 304.072.

**Table 304.071 Minimum Number of Level Measurements per Lot**

|  |  |
| --- | --- |
| **Scale of Surface Level Measurement** | **Minimum Number of Measurements Per Lot** |
| Scale A | 80 |
| Scale B | 40 |

**Table 304.072 Surface Level Tolerances for the Pavement Courses**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Scale of Level Measurement** | **Lower Subbase** | | **Upper Subbase** | | **Base** | |
| **Range**  **(mm)** | **Max. S**  **(mm)** | **Range**  **(mm)** | **Max. S**  **(mm)** | **Range**  **(mm)** | **Max. S**  **(mm)** |
| Scale A | +6 to –10 | 10 | +4 to -8 | 8 | ± 5 | 8 |
| Scale B | +8 to –16 | 15 | + 6 to -12 | 13 | ± 8 | 10 |
| **Notes:**  1. is the mean value of all level readings taken in the lot  2. S is the standard deviation of all level readings taken in the lot  3. A negative value designates a measured departure below the design level and positive value designates a surface level above the design level | | | | | | |

Where the surface does not meet the relevant surface tolerance in Table 304.072, the Contractor shall undertake further work to bring the surface into the specified tolerance and shall re‑survey the test lot in accordance with this clause. The Contractor shall accept all costs associated with the necessary additional works and survey.

For Scale A and Scale B level requirements, the Superintendent may agree to accept a lot which does not conform with the limits of Table 304.072 at a reduced payment subject to the lot not exceeding either of the limits specified in Table 304.073. Where the Superintendent agrees to accept the lot, payment for the work will be reduced as shown in Table 304.073. The value of the lot of work shall be reduced as calculated from the percentages specified in Table 304.073 and the unit rates for pavement construction as specified in Clause 304.14(b).

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**Table 304.073 Payment Deduction for Surface Level**

|  |  |
| --- | --- |
| **Variation** | **Payment Reduction** |
| **Mean ( )** exceeding the specified limit up to a maximum of 25% of the permitted range | 8% plus 4% reduction for each 1 mm of outside the tabulated limit |
| **Standard Deviation (S)** exceeding the specified limit up to a maximum of 35% of the permitted range | 8% plus 4% reduction for each 1 mm of S greater than the tabulated limit |
| If both and S vary by more than the specified limit, the payment reduction shall be the sum of the payment reductions for both and S. | |

(ii) Scale C Surface Level Requirements

Surface level measurement shall be undertaken in accordance with the procedure specified in Section 173.

The surface level of the pavement courses shall comply with the requirements of Table 304.074.

**Table 304.074 Level Tolerances at the Surface of Pavement Courses**

|  |  |  |
| --- | --- | --- |
| **Lower Subbase**  **(mm)** | **Upper Subbase**  **(mm)** | **Base**  **(mm)** |
| + 15 to – 25 | + 10 to - 25 | ± 15 |

(c) Thickness of Pavement Layers

In addition to complying with pavement layer surface tolerances specified in Clause 304.07(b), the following tolerances shall apply to the thickness of any pavement layer:

(i) the subbase course shall be not less than the specified thickness by more than 15 mm;

(ii) the base course shall be not less than the specified thickness by more than 10 mm and the average thickness of base over every 100 m section, over the full carriageway width, shall be not less than the specified thickness;

(iii) the combined thickness of subbase and base courses shall be not less than the specified thickness by more than 15 mm.

Where the Contract does not require design finished surface level control but specifies a pavement composition or a minimum resheet thickness only, the Contractor shall construct the pavement to comply with the requirements of thickness of each pavement layer as specified in this sub-clause. The tolerance requirements of Clause 304.07(b) shall not apply.

(d) Shape

No point on the surface of any pavement layer shall vary by more than:

1. 8 mm from a 3 m straight edge, tested in accordance with ATM 453, or
2. 10 mm from a 6 m straight edge, placed in any direction.

At no location shall water pond on the surface of any pavement layer.

\*\*\* (e) Rideability ##(Note to specification author - include this clause and Section 180 where Rideability targets are required. Note that if a rideability requirement is included, the tolerance requirements of Clause 304.07(b) may not apply and can be struck out):

In addition to the above requirements for surface tolerance, the finished surface shall satisfy the requirements specified in Section 180.

304.08 JOINTING

The layout of joints shall conform to the following requirements:

(a) material shall be spread in such a manner as to minimise the number of joints;

(b) for all pavement layers, transverse joints in adjoining paver runs shall be offset by not less than 2 m;

(c) transverse joints shall be offset from one layer to the next by not less than 2 m;

(d) longitudinal joints shall be offset from one layer to the next by not less than 150 mm;

(e) longitudinal joints shall be located within 300 mm of the planned position of traffic lanes lines or within 300 mm of the centre of a traffic lane.

The exposed end of each lot and the exposed edges of any part width construction shall be kept moist until spreading and compaction has been completed over the entire layer.

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304.09 REQUIREMENTS FOR TESTING AND ACCEPTANCE OF COMPACTION

1. General
2. Pavement lots shall be tested for compliance with the specified compaction scale at the frequency specified in Clause 304.12, in accordance with RC 500.05 and RC 316.00.

RC500.05 requires areas within 200 mm of the edges of construction or within 2 metres of lateral (transverse) construction joints to be excluded from the lot for compaction assessment. Notwithstanding this, the performance of all joints is the responsibility of the Contractor.

Material during compaction shall have a moisture content of not less than 85% of optimum moisture content (OMC). After completion of compaction of a layer, the moisture content of the material in the layer shall be maintained at a moisture content of not less than 85% of OMC until test rolling has been completed. All segregated areas shall be rectified as construction proceeds, prior to the completion of compaction and in such a way as to mitigate the potential for segregation to re‑occur.

1. The Contractor shall provide to the Superintendent a copy of the compaction test results within 24 hours of the test result being available to the Contractor.

(b) Material of Nominal Size 40 mm or Less

Material shall be spread and compacted such that the material is uniformly and consistently mixed both transversely and longitudinally to produce a homogeneous material for each lot.

Material having a nominal size after compaction of 40 mm or less shall be compacted to comply with the following requirements:

(i) The calculation of density ratio shall be based on tests performed using Modified compactive effort. The work shall be assessed for compliance with Scale A, Scale B or Scale C requirements for testing and acceptance of compaction as specified in Clause 304.14 and as provided in Tables 304.091 and 304.092.

(ii) A lot shall consist of a single layer of work and its size shall not exceed that given in Table 304.121.

(iii) For work to be tested for compliance with Scale A or Scale B requirements, the number of tests per lot shall be six. For work to be tested for compliance with Scale C requirements, the number of tests per lot shall be three.

(iv) All pavement layers shall be compacted to withstand rolling and shall be test rolled in accordance with Section 173, prior to acceptance of the layer. For pavement construction, any lot that has a surface area less than 500 m2 may be treated as a small area and tested in accordance with Section 173.

**HP The Contractor shall provide for the Superintendent to be present during all test rolling.** **Where a test roll is accepted by the Superintendent and the Contractor elects to place a subsequent layer without receipt of the compaction test result for the previous layer, the Contractor does so at its own risk. Where the initial layer is determined to have a compaction test result less than the specified minimum compaction, the Contractor shall remove the new layer and rework and retest the initial layer at the Contractors cost.**

(v) The maximum thickness of any pavement base or subbase layer shall not exceed 150 mm.

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(vi) The minimum thickness of any pavement layer consisting of a nominal size 20 mm and size 40 mm material shall be 80 mm and 150 mm, respectively.

**Table 304.091 Acceptance Limits for Scale A and Scale B Standards of Compaction**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Compaction Scale** | **Characteristic Density Ratio % (six tests)** | | | |
| **Lower Subbase**  **Layers** | **Upper Subbase**  **Layers** | **Base Layers** | |
| **Layer directly beneath the Bituminous Surfacing** | **Other Layers** |
| A | Not less than 98.0 | Not less than 98.0 | Not less than 100.0 | Not less than 99.0 |
| B | Not less than 97.0 | Not less than 97.0 | Not less than 98.0 | Not Less than 98.0 |

**Table 304.092 Acceptance Limits for Scale C Standard of Compaction**

|  |  |  |
| --- | --- | --- |
| **Compaction Scale** | **Mean Value of Density Ratio % (three tests)** | |
| **Subbase Layers** | **Base Layers** |
| C | Not less than 98.0 | Not less than 100.0 |

(c) Material of Nominal Size Greater than 40 mm

**The first lot shall be placed as a trial section. Following acceptance of the trial section, the Contractor shall then confirm the moisture control and compaction procedure and submit the procedure to the Superintendent for review and record.**

The Superintendent may require that further trial sections be constructed to verify that the proposed compaction routine is acceptable. No additional payment will be made for any such request.

Acceptance of work as far as compaction is concerned will be based on compliance with the accepted moisture control, compaction procedure and test rolling carried out in accordance with Section 173.

**HP The Contractor shall provide for the Superintendent to be present during all test rolling.**

Unstable areas identified by test rolling shall be rectified by the Contractor.

Prior to any layer being covered by a successive layer, the Superintendent may require further test rolling to confirm that the layer is sound.

304.10 MAINTENANCE OF COMPACTED LAYERS

The surface of any compacted pavement layer or prepared subgrade shall be maintained in such a way as to minimise dust, prevent ravelling, erosion, deformation or any other damage to the layer resulting from environmental conditions, traffic or construction activities. The layer shall be kept free from contamination until any subsequent pavement work under the Contract is commenced or the Superintendent accepts and takes responsibility for that part of the Works.

304.11 POST COMPACTION REQUIREMENTS FOR PAVEMENT MATERIAL

If specified in Clause 304.11(c) or Clause 304.11(d), following completion of compaction, material shall be tested for post-compaction grading and Plasticity Index (PI) at the frequency specified in Clause 304.12 for the appropriate Scale of Testing specified in Clause 304.14(a).

The test samples to be used for post-compaction grading and PI tests shall be a combined sample made up from six randomly selected increments extracted from the lot of pavement construction being assessed. Testing shall be undertaken in accordance with RC 500.16 and RC316.10.

(a) Assessment of Post-compaction Grading

Assessment of post-compaction grading shall be based on a sieve analysis on a sub-sample of the combined sample. The post-compaction grading shall comply with the requirements of Tables 304.111 or 304.112 as appropriate for the crushed product being assessed.

(b) Assessment of Post-compaction PI

The assessment of post-compaction PI shall be based on the mean value of a pair of test results determined from two single results from separate sub-samples taken from the combined sample. The mean PI shall comply with the limits on PI specified in Table 304.113 or such value as approved by the Superintendent to meet the permeability requirement specified in Section 812.

## in (c) and (d) below, delete # symbols and strikethrough inappropriate phrases:

\*\*\* (c) Post-compaction grading testing ##is required: ##is not required: (refer to Clause 304.12(c))

Where post-compaction grading testing is required, the sample shall be taken from the same sample site as the compaction testing.

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\*\*\* (d) Post-compaction PI testing ##is required: ##is not required: (refer to Clause 304.12(c))

Where post-compaction PI testing is required, the sample shall be taken from the same sample site as the compaction testing and the post-compaction grading testing (if required).

**Table 304.111 Post-Compaction Grading Requirements for Crushed Materials**

|  |  |  |  |
| --- | --- | --- | --- |
| **Sieve Size**  **(mm)** | **Post-Compaction Grading Limits**  **(% Passing by Mass)** | | |
| **Class 1 or Class 2 Crushed Rock**  **Crushed Scoria Base** | **Class 3 Crushed Rock**  **Crushed Scoria Upper Subbase** | |
| **Nominal Size (mm)** | **Nominal Size (mm)** | |
| **20** | **20** | **40** |
| 53.0 | ‑ | ‑ | 100 |
| 37.5 | ‑ | ‑ | 95 ‑ 100 |
| 26.5 | 100 | 100 | 75 ‑ 95 |
| 19.0 | 95 – 100 | 95 – 100 | 64 ‑ 90 |
| 13.2 | 78 – 92 | 75 ‑ 95 | ‑ |
| 9.5 | 63 – 83 | 60 – 90 | 42 ‑ 78 |
| 4.75 | 44 – 64 | 42 – 76 | 27 ‑ 64 |
| 2.36 | 30 – 49 | 28 – 61 | 20 ‑ 51 |
| 0.425 | 14 – 23 | 14 – 29 | 10 ‑ 24 |
| 0.075 | 6 – 12 | 6 – 14 | 6 ‑ 13 |

**\*\*\*Table 304.112 Post-compaction Grading Requirements for Gravel, Sand, and Soft or**

**Ripped Rock Base and Subbase Materials**

## in the table below, delete all # symbols, even where no value is to be specified:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sieve Size**  **(mm)** | **Post-compaction Grading Limits (% Passing by Mass)** | | | |
| **Base** | | **Upper Subbase** | |
| **Natural Sands or Gravel** | **Ripped Rock** | **Natural Sands or Gravel** | **Ripped Rock** |
| 75.0 |  |  |  | #: |
| 53.0 |  |  |  | - |
| 37.5 |  | #: |  | #: |
| 26.5 | #: | - | #: | - |
| 19.5 | #: | - | #: | - |
| 9.5 | #: | - | #: | - |
| 4.75 | #: | #: | #: | #: |
| 2.36 | #: | - | #: | - |
| 1.18 | #: | - | #: | - |
| 0.425 | #: | #: | #: | #: |
| 0.075 | #: | #: | #: | #: |

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**\*\*\* Table 304.113 Post-Compaction Requirements for Plasticity Index**

## in the table below, delete all # symbols - Limits after # symbols may be changed if required:

|  |  |  |
| --- | --- | --- |
| **Material** | **Plasticity Index** | |
| **Minimum** | **Maximum** |
| Class 1 Crushed Rock | 2 | 6 |
| Class 2 Crushed Rock | 0 | 6 |
| Class 3 Crushed Rock | 0 | 10 |
| Gravel, Sand or Ripped Rock Base Material | 2 | #:6 |
| Gravel, Sand or Ripped Rock Upper Sub-base Material | 2 | #:12 |

304.12 MINIMUM FREQUENCY OF TESTING

(a) General

The Contractor shall carry out compaction density testing and post-compaction grading and PI testing at a frequency sufficient to ensure that work performed under the Contract complies with the specified requirements but shall not be less than that shown in Table 304.121.

The minimum test frequency specified in Table 304.121 shall not apply to small areas as defined in Section 173. In this case, every lot shall be tested separately for compliance with the specified requirements.

If the nature of material in any lot being placed has visibly altered when compared to previous lots placed, the Superintendent may require additional testing to be undertaken to confirm that the lot complies with the specified requirements for post-compaction grading and PI. No additional payment will be made for this testing.

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The Contractor shall give sufficient notice to the Superintendent as to when testing of constructed work is proposed to allow the Superintendent to inspect and observe the extent of the area to be tested and the selection of sites for testing.

Where the Contractor cannot provide test results to prove the acceptability of constructed work, the Superintendent reserves the right to direct that no further work continues at that location pending receipt of a test result(s) that establishes that the work is conforming to the specified requirements. The Contractor will have no rights to claim for an extension of time or costs associated with any such direction.

(b) Compaction

The Contractor shall initially test every lot for acceptance of compaction in accordance with the requirements of the Specification. Testing of every lot shall continue until three consecutive lots of like material and/or work have achieved the standards specified in Clauses 304.09 and 304.11 when tested for the first time. The Contractor may reduce the frequency of compaction testing to the minimum test frequency as specified in Table 304.121 after satisfying this requirement.

The Contractor may continue to test at the minimum frequency until such time as a lot fails to achieve the specified requirements. All subsequent lots shall be tested until three consecutive lots of like material and work have achieved the specified standard, at which time the frequency of testing may revert to the minimum test frequency.

If the Contractor is testing at the minimum frequency and any test lot does not meet the Specification requirements, the Superintendent may require any previous untested lots between the last lot to be tested and the failed lot to be tested. No additional payment will be made for this testing.

(c) Post-compaction Grading and Plasticity Index (PI)

(i) Scale A Requirements for Post Compaction Grading and PI Testing

Where testing is specified in Clause 304.11(c) or (d) and Clause 304.14 requires it to be Scale A, all pavement layers shall be tested for post-compaction grading and PI at the frequency specified in Table 304.121.

The first lot of each pavement layer shall be tested for post-compaction grading and PI. If the lot satisfies the requirements specified in Clause 304.11(a) and (b) as applicable, the Contractor may test at the minimum frequency as specified in Table 304.121. The Contractor shall immediately notify the Superintendent of any lot that does not meet the specified requirements and any subsequent lot shall be tested as if it were the initial lot. If any lot meets the specified requirements but is reworked to comply with the specified compaction requirements, it shall be retested for compliance with specified requirements.

If the Contractor is testing at the minimum frequency and any test lot does not meet the specification requirements, the Superintendent may require the testing of the post-compaction grading and PI of all lots constructed after the last tested lot. No additional payment will be made for this testing.

(ii) Scale B Requirements for Post Compaction Grading and PI Testing

Where testing is specified in Clause 304.11(c) or (d) and Clause 304.14 requires it to be Scale B, the first lot of each pavement course shall be tested for post-compaction grading and PI.

If the first lot of each pavement course satisfies the specified post compaction requirements in Clause 304.11(a) and (b), as applicable, no further post-compaction testing will be required for that pavement course.

**If the first lot does not meet the requirements specified in Clause 304.11(a) and (b), the Contractor shall seek approval from the Superintendent before work proceeds.**

(iii) Scale C Requirements for Post Compaction Grading and PI Testing

Post compaction grading and PI testing is not required.

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**\*\*\* Table 304.121 Maximum Lot Size and Minimum Frequency of Testing for Compaction, Post-compaction Grading and PI (after passing the minimum number of qualifying lots)**

## in the table below, the limit after # symbol may be changed if required

:## in the table below, at the \* symbol, strikethrough if further PI testing is not required after the first lot is accepted for PI:

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Pavement Layer** | **Maximum Allowable Lot Size for a Single Layer of Work** | **Minimum Frequency of Testing for Scale A Compaction** | **Minimum Frequency of Testing for Scale B and C Compaction** | **Minimum Frequency of Testing for Scale A Post‑compaction Grading** | **Minimum Frequency of Testing for Scale A Post‑compaction PI** |
| Upper Base Layer | The lesser of #:4000 m2 or one day's production | Every lot | One per #:2 lots | One per #:2 lots | One pair per #:2 lots |
| Lower Base Layer | The lesser of #:4000 m2 or one day's production | Every lot | One per #:2 lots | One per #:2 lots | \* One pair per #:2 lots |
| Upper Subbase | The lesser of #:4000 m2 or one day's production | One per #:2 lots | One per #:2 lots | One per #:4 lots | \* One pair per #:4 lots |
| Lower Subbase | The lesser of #:4000 m2 or one day's production | One per #:2 lots | One per #:2 lots |  |  |

304.13 TRIAL - PREPARATION OF BASE FOR BITUMINOUS SURFACING

Where specified in Clause 304.14(c), the Contractor shall undertake a trial to demonstrate that the plant and procedures proposed by the Contractor for the preparation of the base material for bituminous surfacing meet the requirements of this Section and Section 310.

The trial shall:

- consist of a minimum 200 m length of carriageway;

- be undertaken in the Lower Base layer using the material proposed for the Upper Base layer at an agreed location within the works site;

- use the plant and procedures described in the Contractor’s quality plan and demonstrate conformance with Section 310.

The prepared Lower Base surface shall be presented to the Superintendent for inspection and acceptance. The Contractor shall submit a copy of the completed inspection and test plan and all relevant test results and records from the placement trial to the Superintendent.

In the event of a nonconformance in the placement trial, or where the Superintendent determines that the trial has failed to meet the requirements of the specification a new trial shall be undertaken and repeated until such time that Specification requirements have been met to the satisfaction of the Superintendent. Where additional trials are undertaken, the Contractor shall submit to the Superintendent the completed inspection and test plan and all relevant test results and records including plant and procedures from the successful placement trial.

Where the initial placement trial has not been accepted by the Superintendent, all costs associated with and arising from the additional trial(s) will be at the Contractor’s expense. Claims for an extension in time to undertake additional placement trials are not permitted.

At the satisfactory completion of the trial and prior to the placement of the Upper Base, the Lower Base surface shall be treated so that it has texture depth not less than 1 mm without reducing the density of the layer or compromising the integrity of the surface.

**HP Placement of the Upper Base Layer shall not proceed until the Superintendent has accepted that the placement trial meets the specification requirements.**

The Contractor shall update their quality plan to document all plant and procedures used in the preparation of the Upper Base material for bituminous surfacing as agreed to by the Superintendent.

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304.14 SCHEDULES OF DETAILS

\*\*\* (a) Requirements for Testing and Acceptance of Surface Level Measurement, Compaction and Post-compaction Gradings and PIs (Clauses 304.07, 304.09, 304.11 and 304.12)

## in the table below, delete all # symbols and insert required information:

**Table 304.141 Testing Levels**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Roadway** | **Road Chainage /**  **Location** | **Scale of Surface Level Measurement**  **(A, B or C)** | **Scale for Assessment of Compaction**  **(A, B or C)** | **Scale for Assessment of Post-Compaction Grading and PI**  **(A, B or C)** |
| #: | # to #: | #: | #: | #: |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

Where for any location a specific scale has not been nominated, Scale A shall apply.

\*\*\* (b) Basis for Price Reduction for Departure from Specified Surface Level (Clause 304.07(b)(i))

## in the table below delete all # symbols and insert required information:

**Table 304.142 Rates for Price Reduction**

|  |  |  |
| --- | --- | --- |
| **Location** | **Pavement Course** | **Unit Price**  **$/m2** |
| #: | Upper Subbase | #: |
| Lower Subbase | #: |
| Base | #: |
| #: | Upper Subbase | #: |
| Lower Subbase | #: |
| Base | #: |

\*\*\* (c) A trial for the preparation of the base for bituminous surfacing ##is required: ##is not required: (refer to Clause 304.13. ## (strikethrough inappropriate phrase)

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