

SPECIFICATION FOR DIGOUT REPAIRS IN FLEXIBLE PAVEMENTS

1. SCOPE

This specification sets out the requirements for repairs to the pavement structure in flexible pavements, where a digout is required.

To achieve the long term maintenance objectives of Transit New Zealand, the following principles shall be followed:

- (a) The Contractor shall undertake a detailed inspection in order to meet the response times and mark on the road the location and extent of proposed digouts.
- (b) The Contractor shall schedule the location of all digouts required, indicating priority work, and shall submit the schedule together with the proposed method of repair and work programme to the Engineer.
- (c) The Engineer shall review the Contractor's schedule of location, methods and programme, adjust for technical and budget restraints (if any) and return to the Contractor.
- (d) The Contractor shall carry out digout repairs in accordance with this specification and the adjusted schedule, and be responsible for subsequent maintenance of repairs during the Contract period.
- (e) The above shall be carried out within the response times specified.
- (f) Only work on the adjusted schedule will be paid for.

2. RESPONSE TIMES

The response time to carry out work described in Clause 1 of this specification shall be as scheduled by the Engineer in the Contract documents.

3. WORK SCHEDULE

All work scheduled by the Contractor shall be in terms of Transit New Zealand State Highway Route Positions and shall list priority work for particular road groups.

No claims for extras will be considered if the Contractor does not work off the schedule or carries out work not scheduled or work in excess of the scheduled areas unless authorised by the Engineer.

4. SCOPE OF WORK

The scope of work shall include an appropriate combination of the following activities:

- (a) Inspect, investigate, and mark out on road surface proposed digout area.
- (b) Design digout repair.
- (c) Cutting of the digout perimeter.
- (d) Stabilisation of existing material.
- (e) Excavation and removal of excavated material.
- (f) Trimming and shaping of the sides and base of the digout.
- (g) Construction of drainage.
- (h) Supply, placing, shaping and compaction of backfill material.
- (i) Waterproofing and repair.

5. DESIGN LIFE OF REPAIR

The Contractor shall design and construct the repair to ensure that a 10 year life can be expected.

6. VARIATION OF METHOD AND DIMENSIONS

The Contractor shall advise the Engineer immediately of any variation required to the dimensions proposed method of undertaking the digout, if such variations become apparent after excavation has commenced.

7. PROMPT COMPLETION OF REPAIR

Once the edges of the digout are cut the Contractor shall proceed promptly with the repair.

Should any additional work be required due to delay in completion of the digout after initial cutting of the edges, the cost of the additional work shall be borne by the Contractor.

Waterproof surfaces to the completed repair shall be reinstated within one week of the edges being cut.

8. CUTTING OF THE PERIMETER

The perimeter of repairs shall be cut with suitable cutting equipment before executing the remainder of the work so that the sealed surface outside the perimeter of the repair area is not disturbed to the extent that the bond between the sealed surface and the basecourse is destroyed. Ragged edges will not be permitted.

9. EXCAVATION AND DRAINAGE

The digout and any drainage trenches shall be excavated with side slopes battered and the base sloping towards the nearest drainage facility or berm at a slope of 2% to 6%.

The base of the excavation shall be thoroughly compacted and contain no hollows which could pond water.

Where necessary, positive drainage shall be installed and attention paid to any surface drainage improvements which may be necessary to ensure the design life of the digout.

Drainage conduits shall comply with TNZ specification F/2 and have an internal diameter of not less than 50mm.

The cover over drainage conduits shall be not less than 200 mm.

The material surrounding the conduit shall be free draining and protect adjacent formations from erosion.

Drainage trenches shall be backfilled and compacted to the same standards as the digout repair it drains.

10. MATERIALS

10.1 General

All materials used in the repair shall meet the requirements of the appropriate TNZ specifications, or be approved by the Engineer.

10.2 Depth of Materials

For backfill of repairs in pavements, the following shall apply:

- (a) For digouts up to 200 mm deep, basecourse shall be used. Where a thin asphaltic concrete layer is required, the basecourse shall terminate a nominal 20 mm below the finished surface.
- (b) For digouts deeper than 200 mm, backfill of the top 150 mm shall be basecourse. Material used for backfilling below this depth shall meet the requirements of clause 10.4.
- (c) When the depth of digout is greater than 300 mm, the material used for backfilling shall meet the requirements for subgrade material specified in clause 10.3 and/or the requirements for sub-base material specified in clause 10.4.
- (d) For digouts in structural asphaltic concrete the depth of asphaltic concrete backfill shall match the existing asphaltic concrete depth.

10.3 Subgrade Material

Subgrade material used as backfill shall have permeability no higher than subgrade material surrounding the repair area. The material shall have a soaked CBR value of not less than 10 unless a higher value is specified in the contract documents.

10.4 Sub-base Material

Sub-base material shall be free of all non-mineral matter and graded to allow compaction to a stable condition.

The maximum aggregate size shall not be greater than 0.4 of the compacted layer thickness. All sub-base material shall have a CBR value of at least 40.

10.5 Asphaltic Concrete

Thin asphaltic concrete shall comply with TNZ Specification M/10. A grade 5 chipseal shall be applied to the repair surface before applying the asphaltic concrete. Unless required in the contract documents, no diluents shall be used.

Structural asphaltic concrete shall be in accordance with TNZ M/10 Specification.

11. CONSTRUCTION

11.1 Construction of Subgrade Backfill

The backfilling of the repair area, up to the levels of the subgrade adjacent to the repair shall be carried out in layers which will allow compaction to a standard no lower than the adjacent subgrade.

11.2 Construction of Sub-base and Base Course

Sub-base and basecourse backfill shall be placed in layers of uniform thickness and compacted to provide dense, stable layers which do not weave or creep under the action of compaction equipment or road traffic.

11.3 Construction of Surface Sealing

Where practicable construction of a surface sealing coat shall be applied on the same day the repair backfill is constructed. If this is not achieved the Contractor shall take positive steps to ensure that the repair surface does not unravel allowing loose material on the road surface. Should ravelling occur the Contractor shall immediately remove all loose material from the road surface and stabilise the surface of the repair.

The Contractor may maintain the integrity of the repair by application of a temporary holding coat providing this is not detrimental to the final seal coat. The

method used by the Contractor shall ensure that it is not detrimental to the final sealing coat.

A temporary holding coat shall be applied if the Contractor cannot complete a first coat seal within two days.

11.4 First Coat Chip Sealing

On completion of the backfilling, or within one month if an initial waterproof sealing coat has been provided, the surface of a repair in a chip sealed surface shall be sealed with a first coat seal. Alternative sealing methods may be approved by the Engineer (refer TNZ C1 Clause 11). The seal shall overlap the existing seal by between 100-150 mm and upon completion shall present a waterproof surface with a tidy appearance of rectangular shape. Ragged edges will not be acceptable.

11.5 In Situ Stabilisation

Where in situ stabilisation is required the quantity of stabilising agent(s) shall be thoroughly mixed into the in situ material and compacted to meet the requirements of 11.2 above.

12. SURFACE SHAPE

There shall be no depressions in the finished surface that will allow water to pond.

The surface shape of repairs shall be such that the existing road crossfall is maintained, the deviation when measured with a two metre straightedge shall not be greater than 10 mm, both within the digout and between the existing pavement and the digout, and there shall be no sharp ridges.

13. TRAFFIC CONTROL

At all times during the work or activities included in this specification the Contractor shall take responsibility to ensure all traffic control is carried out in accordance with the Specification for Temporary Traffic Control, TNZ G/1.

14. PERFORMANCE CRITERIA

The performance of the Contractor during the contract period will be measured by the following criteria:

- (a) That all digouts are repaired in accordance with this specification and within the response times stated.
- (b) The repaired digouts maintain a smooth riding surface within the surface deviation tolerances specified until the end of the defects liability period.
- (c) No flushing, bleeding or scabbing of the sealed surface of the digout repair.

15. BASIS FOR PAYMENT

The tendered rates shall include allowances for all costs associated with the work, including removal to dump of surplus material and maintenance of the repair.

15.1 Excavation and Backfill of Repairs up to Sealable Surface Stage for Repairs

Payment based on the area of the repair will be made at the schedule rates appropriate to the depth of the excavation and material used.

The rate shall also include for a temporary holding coat if used and for any repair work due to ravelling.

15.2 In Situ Stabilisation

Payment based on the area of stabilisation for compacted depth scheduled will be made at the scheduled rate. Imported make-up material and lime or cement stabiliser shall be included in the scheduled rate. Thickness stabilised will be deducted from measured depth referred to in 15.1.

15.3 Positive Drainage

Payment will be based on length of installed drainage conduit at the schedule rate per lineal metre.

15.4 Sealing and Surfacing

Payment shall be made at the appropriate scheduled rate based on the area of excavation for the digout repair.

Payment for temporary holding coat sealing shall be deemed to have been allowed for in the schedule of rates.