

Hamilton City Development Manual	
Volume 3 : Standard Technical Specifications	Part 3 —Roading Projects
Authorised by : Transportation Manager	Section 11 Page 1 of 5

SECTION 11 : BERM FEATURES

11.1 SCOPE

This Specification describes the work required to construct, reinstate or repair footpaths, vehicle and pram crossings, grass berms and planted areas, and traffic island infill.

11.2 ALIGNMENTS, LINES, AND LEVELS

The edge lines of kerbs, footpaths, vehicle crossings shall be perfectly straight between tangent points, and on curves shall sweep round without kinks, flats or angles in a smooth, true arc to the radius shown or directed. Design levels and alignments shall be strictly adhered to and the grade from level peg to level peg shall be even, provided always that at changes of grade the angle between the grades shall be eased so as to form a vertical curve or other form of smooth transition.

The entire berm area shall fall, at an even grade where possible, from the property boundaries to the kerb and channel.

11.3 BREAK OUT, REMOVAL AND DISPOSAL OF EXISTING BERM FEATURES

All existing berm features which are to be removed shall be broken up and lifted out so as to cause minimum damage to the surrounding features.

The outer limits of these marked areas shall be saw cut, except in the case of paving blocks or grass verges, before the damaged features are removed to provide a tidy interface between existing and replacement work.

Where salvaging of materials is specified, care shall be taken to ensure that as little damage as possible is done to units which are to be recovered, e.g. catchpits, gratings, frames, stormwater piping etc., and such units shall be neatly stacked on the site so as not to obstruct any footpath, vehicle crossing or roadway until they are taken off site.

All spoil, broken path, concrete, etc, not for reuse, shall be removed from site and disposed of.

11.4 EXCAVATION TO PAVEMENT DEPTH

Initial excavation shall be to the pavement depth as shown in the Standard Cross Sections and shall expose the subgrade.

The width of all excavation shall be no wider than necessary to construct or reinstate the various berm features. Specific restrictions on excavations are shown in the Standard Cross Sections and Details.

Where excavation adjoins existing berm features, or carriageways, care shall be taken so as not to undermine the existing surfacing while material is being removed. The sides of the

Hamilton City Development Manual	
Volume 3 : Standard Technical Specifications	Part 3 —Roading Projects
Authorised by : Transportation Manager	Section 11 Page 2 of 5

excavated area shall be trimmed to slopes that are as steep as possible without being unstable or causing undermining.

11.5 SUBGRADE PREPARATION

11.5.1 The exposed subgrade (excavated to trial subgrade level or pavement depth) shall be tested by using a scala penetrometer for compliance with the following CBR values:

- i) In footpath and traffic island infill - CBR value >7 (3 blows per 100mm)
- ii) In vehicle crossing and kerb and channel areas - CBR value >10 (4 blows per 100mm)

11.5.2 If the material fails this initial test then either:

- i) the existing subgrade shall be further compacted if the material is suitable, to improve the CBR value, or if this is not applicable.
- ii) the unsuitable material shall be excavated and removed from site, and replaced with pitsand compacted up to the trial subgrade level.

11.5.3 When treatment ii) is required the excavation shall extend 100mm past either side of the edgeboards, or the outer limits of the construction area.

The depth and extent of this subgrade excavation shall be as instructed by the Engineer.

Note

Small pockets of material may require treatment rather than the entire subgrade area.

All pitsand backfill shall be compacted in lifts of not more than 100mm.

The subgrade area either existing or reinstated shall be trimmed and shaped to accommodate the specified lines and levels given and compacted to provide uniform support for the pavement course.

All tree roots found in the subgrade or pavement area during excavation shall be removed. They will be severed 200mm outside of the final edge alignments, removed from site and disposed of. Any root greater than 50mm in diameter is to be cleanly saw cut. No such roots shall be cut without the prior approval of the Engineer if they are within the drip line of the tree.

11.6 TIMBER EDGING FOR SEAL, ASPHALT AND PAVING BLOCK PATHS AND VEHICLE CROSSINGS

All footpaths and vehicle crossing edges shall be contained by either a concrete kerb or edging, or by timber edge boards which shall form part of the finished work.

Edge boards shall be held firmly in place with wooden pegs (50 x 25mm) or battens nailed to the outer edge at 1.0m centres and at every joining board. The pegs shall be in minimum lengths of 225mm or longer so as to be driven down into solid unyielding

Hamilton City Development Manual	
Volume 3 : Standard Technical Specifications	Part 3 —Roading Projects
Authorised by : Transportation Manager	Section 11 Page 3 of 5

ground. Batter stakes may be used as pegs, driven down into firm ground and trimmed to correct lengths.

All pegs shall sit 15 to 25mm below the top level of the edge boards.

Edge boards shall be joined with 400mm long boards (either edge board offcuts or 75 x 25mm timbers) which will span the joint evenly and are nailed firmly in place. The top of the joining boards shall sit 15 to 25mm below the top level of the edge board.

The spacing of wooden pegs shall be adjusted so that a peg is positioned alongside every joining board.

All timber edging shall be backfilled outside the construction area as necessary to protect the timbers from being damaged, or distorted from alignment and level, during the preparation and compaction of the pavement course.

All edge boards shall be set out using string lines and shall be true and straight at the completion of the work.

If directed by the Engineer, existing timber edging in good condition shall be adjusted for level, repegged and incorporated in the new footpath or vehicle crossing.

At all times excavation for timber edging replacement, installation or adjustment, shall be the minimum required to provide an adequate work space.

Note

Where the path edge adjoins existing kerb, the top of the kerb will be treated as the top of an edge board.

11.7 PAVEMENT COURSE FOR ALL BERM FEATURES

The pavement course shall be constructed of bedding sand and/or GAP metal (NZTA-AP metal on occasions) and shall form a compacted pavement depth conforming to the Standard Cross Sections.

Where existing metal paths or vehicle crossing areas are to be upgraded on the same alignment and basically require to be "built up", less added metal may be required to achieve the specified pavement depth provided that the existing metal is considered suitable by the Engineer.

For chip seal and asphalt paths the final pavement surface shall have a tight stone mosaic surface, with no loose metal, suitable for the application of either a tack coat and an asphalt layer or a chip seal surfacing as appropriate. A skin of GAP 20 may need to be added to GAP 40 areas and compacted into place to achieve this.

All pavement course shall be compacted to refusal in lifts of not more than 100mm.

Hamilton City Development Manual	
Volume 3 : Standard Technical Specifications	Part 3 —Roading Projects
Authorised by : Transportation Manager	Section 11 Page 4 of 5

11.8 PRE-EMERGENT WEEDSPRAY

The whole of the footpath and vehicle crossing pavement course shall be treated with a pre-emergent chemical approved by the Engineer and used at the strength and rate of application as recommended by the manufacturers.

All safety precautions, in particular the use of protective clothing, face masks, gloves etc, shall be rigidly adhered to during mixing and spraying as required by the manufacturer's labels and literature accompanying the chemicals used.

Consideration of the public over and above their protection in the safety aspects shall be maintained at all times. Spraying near schools shall not be carried out when children are likely to come into close proximity of the spraying.

Care shall be taken when applying weedkillers to ensure that no harm is done to any vegetation on adjoining private property or to the area of berm to be grassed, and those applying it shall be held responsible for any claims for damage to gardens and/or lawns etc caused by this operation.

11.9 CHIP SEAL SURFACING - FOOTPATHS AND VEHICLE CROSSINGS

Chip seal surfacing shall be carried out in accordance with the relevant clauses of NZTA Specification P/3 - Specification for First Coat Sealing.

The prepared pavement shall be swept to remove all loose metal and debris before sealing takes place.

180/200 penetration grade cut back bitumen shall be sprayed at an application rate submitted by the Contractor and consented to by the Engineer. An adhesion agent shall be added to all bitumen brews.

Grade 5 Sealing Chip complying with NZTA Specification M/6 - Specification for Sealing Chip, shall be used and spread at a rate directed by the Engineer.

A higher chip application rate is generally required in high pedestrian areas, especially near commercial zones, to prevent people from tracking binder into buildings and damaging floorings.

Attention to rolling is required to ensure good chip adhesion.

The Contractor will be required to monitor the site and organise the pick up of excess chip once the seal coat has "settled down". All excess chip shall be removed from adjoining grass berm areas and from the kerb and channel.

11.10 CONCRETE FOOTPATHS & VEHICLE CROSSINGS

Concrete surfacing shall be carried out in accordance with the relevant clauses of the Section 8 - Concrete Works.

Hamilton City Development Manual	
Volume 3 : Standard Technical Specifications	Part 3 —Roading Projects
Authorised by : Transportation Manager	Section 11 Page 5 of 5

Where concrete paths are to be constructed steeper than 1 in 10, a permanent non-skid surface should be provided (broom finish or similar).

For cross section detail refer Standard Details — “Cross Section Details for Footpaths, Vehicle Crossings and Depressed Kerb & Channel”.

11.10.1 Crack Control

In concrete paths, crack control lines shall be formed or cut at vehicular crossing/footpath edges and along the path at a maximum spacing of 5.0m. All crack control lines shall be 25mm deep.

11.11 ASPHALT SURFACING

The prepared pavement shall be swept to remove all loose metal and debris prior to the application of a tack coat. The tack coat shall be applied to all surfaces against which the asphalt material will be placed generally at an application rate of 0.25 litres/m²

Asphalt Mix shall be laid to the compacted depths shown in Drawing No. TS 310. The final surface shall be flush with the top of the edge boards and graded uniformly between them.

No depressions or irregularities that would cause water to pond will be permitted in the finished surface.

All asphalt shall be laid in accordance with NZTA Specification P/9 - Construction of Asphaltic Concrete Paving, except that plant appropriate to the size of the area being surfaced shall be used.

11.12 ASPHALT OVERLAY

Where asphalt smoothing or overlay is required the existing chip seal/asphalt surface shall be swept to remove all loose metal and debris prior to the application of the tack coat. Mix 5 shall be used to smooth irregularities up to a compacted depth of 20mm.

Mix 10 shall be used to compacted depths of 20-50mm and Mix 20 for 50mm and greater compacted depths.