



TOWN OF VINCENT

SPECIFICATIONS FOR THE

REINSTATEMENT OF

ROADS & KERBS

REINSTATEMENT OF ROADS

1. GENERAL

- 1.1 All materials used shall be in accordance with the Council's standard specification and any materials used which are inferior to those specified or as directed by the Executive Manager Technical Services shall be rejected.
- 1.2 Protection of works and the public shall be provided and all necessary signs, barricades, road warning lamps etc. shall be installed.
- 1.3 Any damage which may occur to any Council facilities or private property during the course of the works of which may subsequently become evident from the operations thereof shall be the sole responsibility of the Contractor, who shall be held responsible for the repair, replacement, legal claims, liability or any other thing which may arise from the carrying out of any such works.
- 1.4 Adequate provisions shall be made for the safe and convenient passage of pedestrians and vehicles.
- 1.5 Suitable traffic barriers and/or warning signs to regulate and protect pedestrians and traffic shall be erected and maintained as may be necessary or as directed. Such barriers and warning signs, if required at night, shall be provided with warning lights and shall be illuminated from sunset to sunrise.

2. EXISTING SERVICES

The Contractor shall be responsible for the location of all existing services.

During the excavation, the Contractor shall take every precaution necessary for the protection from injury to any existing service conduit.

All damage caused to services shall be the responsibility of the Contractor who shall arrange for the responsible Authority to make good any damage caused.

3. DAMAGE

The Contractor shall be responsible for any damage caused to buildings, roads, paths, fences, persons or services by whatever cause due to the works and shall make these good and bear any compensation. Where services are damaged, the relevant Authority is to be notified immediately, and all charges, fees etc. paid by the contractor, at his cost.

4. WATER SUPPLY

The Contractor shall provide at his own cost, all water necessary for the execution of the work. At no time shall the Contractor make unauthorised connection to or tamper with Water Corporation water mains or fittings.

5. PROVISION FOR TRAFFIC

The Contractor shall provide traffic warning signs where work is in progress.

The Contractor shall allow sufficient labour to direct and control traffic to allow the proper completion of the works and the safety of the traffic. The Contractor shall allow reasonable access at all times to properties during progress of the work.

6. ROADS TO REMAIN OPEN TO TRAFFIC

Roads shall remain open to traffic at all times.

Half road closures may be permitted during normal working hours following obtaining approval from the Town subject to the correct traffic control procedures being adopted.

Outside the normal hours of work, the road is to be open to two way traffic, and shall be left in a safe and trafficable condition for such purposes.

7. CLEANING UP

The Contractor shall ensure that works are finished to uniform grade, free of depressions and that all surfaces make smooth junctions with existing work. The Contractor shall remove from site all rubbish, salvaged materials. The whole area shall be left in a neat and tidy condition to the satisfaction of the Town.

8. DEFECTS LIABILITY PERIOD

The Contractor shall have the care and maintenance of all work for a period of 12 months after it has been taken over by the Town. The Contractor shall make good at his own cost and expense, and to the satisfaction of the Town of Vincent all defects of materials and workmanship that may arise during this period of defects liability.

The Town of Vincent shall have the full, free and unrestricted use of the said work without any interference whatsoever on the part of the Contractor during the currency of the maintenance period and such use shall not relieve the Contractor of any liabilities of obligations.

9. DUST CONTROL

The Contractor shall comply with the provisions of “Dust Control Guidelines” published by the Environmental Protection Authority – September 1990.

10. ADJACENT RESIDENCES

The Contractor shall ensure particular attention is given to plant, equipment and manpower operations so as to avoid causing a nuisance to adjacent residences due to the works.

11. REINSTATEMENT OF TRENCHING IN ROADS

11.1 Formation

The formation shall consist of a minimum 300mm depth limestone complying with the requirements of this specification.

The final seal shall consist of a minimum 40mm depth bituminous concrete thicklift with a 10mm nominal size aggregate as outlined in the specification.

11.2. Excavation

The road surface is to be saw cut prior to commencing excavation to ensure that the resulting trench has defined square edges.

11.3 Sub-Grade

All sub-grade material shall be checked to ensure that it is free from roots and any other organic matter and/or other potentially deleterious material.

The sub-grade shall be compacted to 95% of the maximum dry density when tested in accordance with AS1289 E2.1 – 1977.

11.4 Formation

- (a) The formation shall be placed so that the sub-grade is not disturbed and broken up and that the even thickness specified is achieved. Limestone shall not be spread upon a waterlogged sub-grade.
- (b) All limestone used shall as far as practicable conform to the following specifications:
 - Crushed limestone shall be limestone obtained from an approved source and be crushed to comply with the grading in this specification.

- Methods of sampling and testing of crushed limestone shall be in accordance with the following Australian Standards:-

AS1141 – 1974 Methods of sampling and testing
Aggregates

AS1289 – 1977 Methods of testing soils for
Engineering purposes

The crushed limestone shall have resistance to abrasions, when determined in accordance with the Los Angeles Test to show a weight loss not exceeding sixty (60) per cent by weight.

The calcium Carbonate content of the crushed limestone shall not be less than sixty (60) per cent by weight.

- The crushed limestone for sub-base shall comply with the following grading requirements;

Sieve Size (Square openings As Sieve)	Per Cent Passing by Weight
75mm	100%
19mm	50-75%
2.36mm and less	30-50%

- (c) The formation material shall be compacted by vertical rammer and watering. Each course shall be rolled until it is compacted to a firm, even surface.

When completed, the pavement shall be firm and unyielding to the satisfaction of the Superintendent and have a compaction which shall not be less than 98% of the maximum dry density when tested in accordance with AS1289 E2.1 – 1997.

If, during the works, the surface of the pavement shows, in the opinion of the Superintendent, evidence of crazing, ravelling, potholes, corrugation, consolidation, subsidence or lack of cohesion, the pavement shall be loosened uniformly by harrowing or other approved means, additional material added where necessary to fill depressions or to provide binding, and the whole compacted as specified.

11.5 Bituminous Concrete

The minimum thickness of bituminous concrete shall be 40mm.

The bituminous concrete surfacing shall comprise a mix of course crushed rock aggregate, fine aggregate and mineral sand filler, uniformly coated and mixed with bituminous binder.

(a) Aggregate

Course aggregate shall be good quality crushed diorite, clean, free from weathered particles and excess dust. Sand shall be clean, hard and durable without clay and other deleterious matter.

The course aggregate shall have a Los Angeles abrasion loss of not more than 30%. The combined aggregate shall have a particle size distribution when tested in accordance with AS1289 C6.1-1977 as follows:-

AS sieve size	Percentage by weight minimal aggregate passing sieve	
	10mm nominal size	7mm nominal size
13.2mm	100	100
9.5mm	95-100	100
4.75mm	54-74	68-88
2.36mm	36-57	49-67
1.18mm	29-45	37-53
600.0µm	19-35	25-41
300.0µm	11-23	15-27
150.0µm	6-14	4-16
75.0µm	3-7	4-8

(b) Binder

The binder shall be Class 170 residual asphaltic bitumen and the bitumen content by weight of the total mix shall be 5% to 6% and comply with requirements of AS2008-1980.

(c) Mixing

The bituminous concrete shall be mixed in an approved pug-mill plant, or drum mix plant.

Aggregate shall be pre-heated to a temperature of 130°C to 165°C. Binder shall be introduced at a temperature of 140°C to 160°C and mixing shall continue until a homogenous material is produced. Any material that is found to be at a temperature exceeding 175°C at the mixing plant shall be rejected and shall not be placed in the Works.

12. BRICKPAVING

12.1 Laying Pavers

Pavers shall be placed on a minimum 150mm thick compacted limestone base with 20-30mm of bedding sand. They shall be laid to the nominated laying pattern, care being taken to maintain the specified bond throughout the job. Paving units shall be placed to achieve gaps nominally 2 to 4mm wide between adjacent units such that all joints are correctly aligned.

The first row of pavers shall abut an edge restraint with a gap of 2 to 4mm and shall be laid at a suitable angle to the edge restraint to achieve the required visual orientation.

In each row all full units shall be laid first. Closure units shall be cut and fitted subsequently. Such closure units shall consist of not less than 25% of a full unit. Units may be cut using a mechanical or hydraulic guillotine, bolster, or by power sawing. Cutting of pavers to less than 25% of their standard size should be avoided by using insertions one half or three quarter size.

Except where it is necessary to correct any minor variations occurring in the laying bond the paving units shall not be hammered into position. Where adjustment of position is necessary, care shall be taken to avoid premature compaction of the sand bedding.

Any foot or barrow traffic shall require boards overlaying paving to prevent disturbance of units prior to mechanical compaction. No other construction traffic shall be allowed on the pavement at this stage of construction.

12.2 Compaction

After laying the pavers they shall be compacted to achieve consolidation of the sand bedding and brought to design levels and profiles by not less than three passes of a suitable plate compactor.

12.3 Damaged Units

Any units which are structurally damaged during compaction or do not comply with the acceptance criteria described, shall be immediately removed and replaced.

12.4 Filling Joints

As soon as practical after compaction, and in any case prior to the termination of work on that day, sand for joint-filling shall be spread over the paving. The sand shall be free of all soluble salts or contaminants likely to cause efflorescence or staining.

The filling sand shall be broomed to fill the joints. At least one pass of the plate vibrator is required to achieve compaction of the joint filling sand.

12.5 **Acceptance Criteria for Paving**

Paving will not be approved until the following criteria is satisfied.

- a) the finished pavement shall conform to the construction tolerances and be free draining at all times. the maximum finished surface tolerance deviation using a 3m straight edge shall be 10mm and the level of adjacent pavers shall not differ by greater than 2mm.
- b) the pavers shall be true to shape with no transverse cracking or surface crazing.
- c) pavers shall be blended as required to ensure the colour of the pavement is uniform.
- d) the surface texture to be uniform throughout.

12.6 **Clean Up**

At the completion of all paving works, the Contractor shall clean away all debris resulting from his works.

Kerbs shall be left clean and true to line, manhole lids shall be exposed and flush with the finished paving levels, stormwater pits shall be free from all debris and their surface flush with the pavement as detailed.

12.7 **Screed Sand**

Screed sand shall be well graded, free from deleterious materials and organic matter and must not contain soluble salts that may cause efflorescence.

12.8 **Setting Sand**

Setting sand shall be well graded, pass a 2.36mm sieve and be free from deleterious materials likely to cause staining.

12.9 **Limestone**

(Refer to Clause 11.4)

12.10 **Bricks**

Bricks shall be new, solid, manufactured in clay and have sharp or true bevelled arises. They shall have nominal dimensions of

230x115x65mm and have an equivalent transverse strength of 2.5mpa as determined by AS1226.3.

Note: Rumbled/handmade bricks will not be approved.
Interlocking concrete pavers will be permitted.

12.11 Samples

If required, the Contractor shall supply the Superintendent, with ten pavers for testing and approval, at least 24 hours before the commencement of work. This requirement will only apply if the Superintendent is not satisfied with the proposed paver to be used for the crossover.

12.12 Construction

a) Formation

Boxing out for the formation shall be carried out taking due care to protect all existing infrastructure e.g. kerbs paths etc.

The subgrade generally consists of sand which is adequately compacted. Where the subgrade has failed the Contractor shall replace the defective material with suitable sand which is to be compacted to a minimum density of 7 blows per 300mm as determined by a standard penetrometer.

b) Base Construction

The base material (limestone) shall be placed at optimum moisture content and spread such that the final compacted thickness is a minimum of 150mm. The materials shall be worked to the correct lines and levels and thoroughly compacted. Alternative base materials such as rockbase and cement stabilised sand may be permitted, subject to approval by the Superintendent.

c) Bedding Sand

Bedding sand shall be placed and screeded at optimum moisture content. The finished thickness of the sand shall be in the range of 20 to 30mm.

d) Placement of Pavers

Pavers shall be laid in either a 45° or 95° herringbone pattern, leaving a maximum space of 2-3 mm between each brick.

Immediately after the laying of the bricks, a minimum of three passes shall be made over the surface with a suitable vibrating plate compactor. During compaction, the paving shall be protected

from damage by utilising a suitable protective medium between the surface of the plate compactor and the joints refilled.

e) Edge Restraints (Where required)

A single row of header bricks shall be set on the beam using a mortar mix of four parts bricklayer's and one part cement.

13. EXTRUDED CONCRETE KERBING

13.1 Material

- (a) Concrete used for the kerb shall be ready mixed concrete conforming with the provisions of AS1579. The maximum size of aggregate shall be greater than 9mm but less than 20mm.
- (b) The cement shall be Portland Cement conforming with the provisions of AS 1315 and have a 30mm slump.
- (c) The cylinder strength when tested in accordance with AS 1012 part 9 shall exceed 10 Mpa in 7 days and 20 Mpa in 28 days.

13.2 Equipment

All kerbing constructed under the specification shall be placed by an extrusion machine approved by the Executive Manager of Technical Services.

The machine shall be maintained in a satisfactory working condition and shall be capable of laying the kerbing accurately, efficiently and to the tolerances set out herein.

Generally, the work is to be performed on newly constructed and hotmix road surfaces with face of kerb marked at least every ten metres.

13.3 Shape

- (a) The final shape and dimensions of the extruded kerb shall be as given in the attached drawing A4-95025.
- (b) Gaps between old and new work shall be filled by hand placing, rodding and shaping of the concrete until a satisfactory shape and finish has been obtained.
- (c) Hand placed sections shall be constructed using similar concrete to that used for the remainder of the kerb, rodded and shaped to give a finished kerb meeting the requirements of this specification.

- (d) The top surface of the kerb shall be parallel to the ruling grade of the pavement or pre-determined level and shall be free from depressions exceeding 3mm when measured from a 3 metre long straight edge.

13.4 **Jointing**

- (a) Expanding Joints

Expansion joints shall be provided at 5.0 metre intervals, sawn at right angles to the longitudinal line of the kerb. The width of joint shall be 10mm thick extending the full section of the kerb.

At gully pits and all tangent points, the expansion joint shall be formed and made 10mm thick extending the full section of the kerb.

All expansion joints shall be sealed over the full face of the section with a 12mm square strip of “Sampreme” foam or similar approved joint filler, leaving a depth of 10mm at back, top and front of kerb which shall be sealed with Expandite Silicone 66 or equivalent to a depth of 10mm to all faces of the kerb.

Equivalent types of foam and mastic may be used if approved by the Executive Manager of Technical Services. All joints shall be cut on the day following the laying of the section.

- (b) Contraction Joints

Contraction joints shall be formed at 5.0 metre intervals, located midway between expansion joints and shall be made full depth of the kerb by cutting with a spade, shovel or similar tool. The joint shall then be formed with a grooving tool to a depth of 15mm and a width not greater than 6mm.

All contraction joints shall be sealed with Expanite Silicone 66 or equivalent, finishing 3mm below the face of the kerb.

13.5 **Curing**

After initial set, concrete surfaces shall be cured for a minimum period of seven (7) days with a sprayed application of Calcure ‘CR’ or equivalent, applied at the rate and by a method specified by the manufacturer, within two (2) hours of surface finishing of the concrete.

13.6 Protection for Pedestrians and Vehicles

- (a) Adequate provision shall be made for the safe and convenient passage of pedestrians and vehicles in sections of road, footpath or pedestrian island adjacent to work.
- (b) No material or plant required in the construction of the kerb shall be deposited on any footpath or roadway so as to obstruct pedestrians or traffic unreasonably. All materials and plant shall be kept within the narrowest practicable limits.
- (c) Suitable barriers and/or warning signs to regulate and protect pedestrians and traffic shall be erected by the Contractor and maintained as may be necessary or as directed. Such barriers and warning signs, if required at night, shall be provided with warning lights and shall be illuminated from sunset to sunrise.
- (d) Particular attention is drawn to the appearance of the finished work. All precautions shall be taken to prevent the dropping of concrete onto sealed pavements, and dropped materials are to be removed immediately and the marks obliterated by washing and brooming before the concrete sets.

13.7 Measurement

- (a) The height of the finished kerb shall be that shown on the drawings and the top surfaces shall not depart by more than +/- 5mm from any predetermined levels. Where any variation in the finished kerb, as shown in the drawings, exceeds +/- 5mm, a reduction in payment of the tendered rate for the section of the kerbing shall be negotiated between the Contractor and the Executive Manager of Technical Services.
- (b) The Executive Manager Technical Services may reject and order the removal of any kerbing where cracking occurs or any other failure be noted for a period of three months following construction. Any and all kerbing so rejected by the Executive Manager Technical Services shall be completely removed and replaced at no cost to the Council.

14. PRECAST CONCRETE KERB

- (a) Precast concrete kerbing is to be used only when sections have been removed for maintenance works.
- (b) The kerb shall be placed in a compacted limestone base conforming with the requirements set out in Clause 11.4.

- (c) The top surface of the kerb shall be parallel to the ruling grade of the pavement or predetermined level and shall be free from depressions exceeding 3mm when measured from a 3 metre long straight edge.
- (d) The height of the measured kerb shall match the existing kerb height. Where a variation exceeding 5mm occurs, the kerbing will be relaid at no expense to the Council.
- (e) All joint widths shall be 5mm thick extending the full section of the kerb.