CITY OF VINCENT

SPECIFICATION

FOR CONSTRUCTION

OF

RIGHTS OF WAY

Revised January 2007

INTRODUCTION

Right of Ways within the City of Vincent may **only be constructed in Asphalt or Brick Paving** and must be constructed in accordance with the attached specifications.

Concrete is not allowed due to constant access by developments and Water Corporation to the Sewer infrastructure.

In addition to this;

- The contractor shall notifiy the City in writing prior to any works commencing. The notification given shall include the name of the contractor undertaking works, contact details and proposed length of time to complete works. During the various stages of works the Citys officers will be required to undertake inspections and to ensure these specifications are fully complied with.
  The contractor is required to make contact with the Citys officers for the above inspections to take place.

- The contractor shall notify the adjoining residents of the intended works including the name of the contractor, contact details and the proposed length of time to complete works. Residents must be given access to their property at the conclusion of each day.

- The hours of work must comply with the Evirionmental Protection Act and Environmental Protection (Noise) Regulations – 1996 and relevant Health and Safety Regulations.

- The contractor shall be responsible for the works undertaken for a period of 12 months upon completion. Any faults arising from the workmanship or materials within this time frame will be the responsibility of the contractor to make good as soon as possible and to the Citys satisfaction.

- Ample provision must be made to minimise delays and inconvenience to the Right of Way users and adequate provisions made for the safety of the general public.
  All works must comply with the Occupational Health and Safety Act 1984 and Regulations of 1996.
  Whilst construction is in place the contractor must adhere to AS1742.3 2002 for traffic control and signs , lights and barricading.

TABLE OF CONTENTS

1.0 CLEARING

Clearing shall only be carried out to the extent of property boundary/or as specified. The Contractor shall obtain approval prior to commencing clearing. The contractor shall dispose of all cleared material off site. No material removed as part of the clearing shall be used as backfill.
All dead trees and other vegetation material shall be carted to a municipal or private dump site at the contractors or developers expense.

Where clearing and excavation occurs adjacent to existing residences all works shall be undertaken to ensure minimum inconvenience to the residents and general public.

Contractors are to ensure no damage to any of the private property fences or Water Corporation infrastructure (Sewer manholes) and any damage shall be reinstated to the satisfaction of the Executive Manager of Technical Services or his representative.
The contractor is to ensure prior to commencement of this stage of works he has obtained a sewer plan from the Water Corporation or relevant Storm Water (Drainage) plans from the City so as none of the existing infrastructure is damaged.
It is also his responsibility that he has obtained all other relevant service or public utility plans. Any damage must be reported to the relevant authority immediately and repaired at his cost.

Adjoining residents are to be notified of intentions for the purpose of entry and exit to properties via the Right of Way. (R.O.W.) and access must given at the conclusion of the days work.

The Contractor shall comply with the provisions of the Environmental Protection Act and "Dust Control Guidelines" published by the Environmental Protection Authority – September 1990.
Adjoining residents must not unduly be inconvenienced through excess dust and the contractor must adhere to dust suppression by means of bore water if necessary.

2.0 BOX OUT (EXCAVATE TO WASTE FOR SUB BASE)

The depth of the box out will be governed by the levels supplied by the City and the type of finished pavement selected.
Again any damage or loss of fences during this process will be the responsibility of the contractor and at his expense to make good to the Citys satisfaction.

Width of box out is to be from boundary to boundary or as specified by the Executive Manager of Technical Services or his representative.
The tolerance for the sub-grade width shall be + / - 100 m.m.
Compaction of the sub-grade shall conform to a minimum of 95 % of the maximum dry density when tested in accordance with AS 1289 2.1.1. 2005
Dust suppression must be kept to a minimum by means of bore water so as not to inconvenience adjoining residents and to increase the compaction strength required.

The finished levels of the sub-grade box out shall be within + / - 20 m.m. of the design levels, or as approved by the relevant officer.

3.0 SUB- BASE PAVEMENT

The pavement depth for the sub-base shall be a minimum of 250 m.m. compacted limestone for an Asphalt finished surface or 200 m.m. compacted limestone for a Brick Paving finished surface. using either 19 m.m. or 75m.m. limestone from an approved supplier.

Road base may be used but the contractor must seek the Citys approval first and the contractor must supply the source of purchase and relevant specifications of the material purchased.

All material to be supplied and / or used by the contractor shall conform to the relevant Australian Standard Specification and in all cases shall be quality approved by the relevant Citys officer.

All limestone used in the sub-base construction shall conform to the following specifications.

Crushed limestone shall be obtained from an approved source and be crushed to comply with the grading in this specification.
It shall be free of any tree roots or other organic matter, sand, capstone and other deleterious material.
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.
The Calcium Carbonate content of the crushed limestone shall not be less than sixty (60) per cent by weight.

During the compaction stage the materials shall contain sufficient moisture to ensure that the specified density to this specification is achieved.
When compacted, the pavement shall be firm and unyielding to the satisfaction of the Citys officer. The compaction which shall be no less than 95 % of the maximum dry density in accordance with the test procedure outlined below.
Nuclear Density Meter Field Test in accordance with AS 1289 2.1.1 , AS 1289 5.2.1.,
AS 1289 5.4.1. and AS 1289 5.8.1.
The City may request the contractor to supply the above compaction test from an approved NATA Accredited Laboratory at their expense.

4.0 STORMWATER DRAINAGE

4.1 GENERAL

Due to the lack of stormwater pipes in Right of Ways , soakwells must be installed to contain any stormwater run –off from the area constructed and paved. The construction of the right of way will be inverted so as all stormwater falls away from the property boundaries and drains towards the centre. The soakwells are then placed in the centre of the right of way at intervals to accommodate the stormwater run –off. It is preferable that 1.2 metre x 1.2 metre soakwells are used at intervals no greater than 100 square metres of paved area.

The contractor must contact Water Corporation for the lay-out and depth of the main sewer. Since the main sewer is also in the centre of the right of way the depth may clash with installing the soak well. If the depth does not allow for a 1.2 metre x 1.2 metre soakwell to be installed then a 0.9 metre x 0.9 metre soakwell may be installed. This dimension soakwell must be placed no greater than every 45 square metres of paved area.

The City takes no responsibility for any damage to public utility services in the Right of Way. The contractor must ensure he has all Dial before you Dig One Call plans and all services are located and depth established prior to the commencement of any works.

4.2 PRECAST CONCRETE SOAKWELLS AND GRATED COVERS

Precast Concrete Soakwells shall be assembled in strict accordance with manufacturers Specifications. They shall be free of cracking, chipping or any other deformities. The liners for soakwells shall be either 1200 mm or 900 mm nominal diameter reinforced concrete with lourved slots to maximise soakage from stormwater run off. The strength shall be equivalent to Class “2 “ in accordance with drainage products. Concrete used for manufacture shall conform with AS 3600 & AS 1379 and purchased from an approved manufacturer. Concrete for soakwells shall have a minimum 28 day cylinder test compressive strength of 20 Mpa. and maximum sized aggregate used shall be 20mm.

The soakwell cover must be a minimum of 125m.m. in depth reinforced concrete to accommodate for heavy vehicle movement within the right of way. Compressive strength of the concrete used must be a minimum of 20 Mpa and conform with AS3600 & AS 1379. Purchase must be from an approved manufacturer. The diameter of the cover preferably will be either 1200 mm or 900 mm depending on the size soakwell used. This will ensure maximum compaction around the soakwell. The cover must have a flush galvanised steel grate, strapped gully insert 450mm x 450 mm. to maximise water catchment and alleviate bicycle traffic being trapped within the grate.

4.3 INSTALLATION OF SOAKWELL

As stated earlier the soakwell is to be placed in the centre of the Right of Way or an alternative position to be approved only by the City of Vincent. The excavation depth for the soakwell by machine must not be greater than 1 metre before placement of the liner into position. Once the liner is placed into position the remaining depth will be dug out manually by hand to alleviate the liner dropping later.

Once the level of the liner is established it must be placed on bricks, spaced around the perimeter of the bottom of the liner, this will also ensure the liner does not drop from its original level of installation. The soakwell cover can then be placed on the liner.This must be flush with the pavement level on completion of asphalt or brick paving. The material used for backfilling shall be clean granular sand free from stones over 25mm dimensions, organic or other deleterious matter. Compaction must be done in 300mm layers to a minimum of 95 % of the Modified MDD, up to the subgrade level. On completion the level of the soakwell must conform to the ruling horizontal and longitudinal grade or levels established as to the satisfaction of the City of Vincent.

5.0 KERBING

Kerbing may be of two types.

A. Jarrah timber kerbing is permitted and must be free of any white ant activity.

Three (3) metre length sections or less of 150m.m. x 75 m.m. Jarrah can be installed as a flush kerb along the perimeter of the fence lines or crossovers without an edge.

Support legs of 750m.m. in depth buried in the ground bolted with galvanised cup head bolts to the three metre sections so as to ensure no movement / damage against fence lines. Bolts to be 10m.m. in diameter by 170 m.m in length.

Any retaining required due to level difference of internal property levels will be done so with an approved brick or concrete product or any other product approved by the City.

Once installed this must be as straight as possible and to the satisfaction of the City. The City reserves the right for removal and replacement of the flush timber kerb if the workmanship does not meet the satisfaction of the Executive Manager of Technical Services or his appointed representative.

B. Cast –insitu concrete kerbing

Concrete used for the kerb shall be pre-batched concrete, from an approved supplier conforming to AS 3600.

(i) The maximum size of the aggregate shall be no greater than 9 m.m.
(ii) The cement used shall be Portland Cement conforming with Australian Standards and have a 30 m.m. slump.
(iii) The cylinder strength when tested will be in accordance with AS 1012 part 9 shall exceed 20 M.PA. in 28 days.

All kerbing must be laid by means of a extrusion machine and laid on the limestone base. Expansion joints must be sawn every five(5) metre intervals at right angles to the longitudinal line of the kerb.The width of the join shall be 10 m.m. thick extending the full length of the kerb. All expansion joints shall be sealed over the full face of the section with a 12m.m. strip of “Samprene “foam or similar approved joint filler , leaving a depth of 10m.m. at back, top and front of kerb which shall be sealed with Expandite Silicone 66 or equivalent

depth of 10m.m. to all faces of the kerb. Contraction joints shall be every five (5) metre intervals located between expansion joints. The joint shall be formed with a grooving tool to a depth of 15m.m. and a width no greater than 6m.m.

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

Any damage to the kerb will be replaced by the contractor at his expense.

Generally the mould of concrete kerb will be either of a Semi- Mountable , Mountable or a flush kerb as per the specification and requirement by the City. The contractor must seek the Citys advice as to the type of kerb to be used.

Backfill of the kerb is to be locally occurring top soil or clean yellow sand free of any debris.

6.0 ASPHALT / BITUMINOUS CONCRETE INSTALLATION

The black Asphalt to be used shall be of a dense grade with either a 7 m.m. or 10m.m granite or diorite aggregate. The red Asphalt shall be of a gravel pave mix with a 1 % red oxide.

All asphalt used shall be batched and purchased from an approved supplier conforming to the requirements of ISO 9002 and as per AAPA guidelines and must conform with AS 2150 – 2005.

All Asphalt is to be laid at a minimum depth of 30-35 m.m. and a compacted density of at least a minimum of 35 to 50 Marshall Blows.

7.0 BRICK PAVING INSTALLATION

Brick Pavers

Type – Clay or Concrete pavers may be used.
Contractor must specify type of paver to be used and provide a sample to the City. The minimum thickness of the paver to be used will be 76 m.m. solid paver and the tensile strength to be determined in accordance with AS4456.18 :2003. The Executive Manager reserves the right as to the paver used and may reject inferior pavers such as rumble pavers.

Dimensional Tolerance

The paver shall be of 230mm nominal length x 114mm nominal width with a minimum depth of thickness of 76 m.m. high performance clay paver or 80m.m. concrete interlock paver or otherwise as approved and shall have a $\pm$ 2mm tolerance on all dimensions. The brick face shall be free from dishing and warping and when tested with a straight edge

placed on any face, the maximum permissible deviation from the contact edge shall not exceed 2mm.
The transverse strength shall be determined by the procedure outlined in AS4456.3 1997 and the characteristic transverse strength shall not be less than 2.0Mpa.

Wear Resistance - Abrasion Test

The abrasion test to be used to determine wear resistance is Procedure C of ASTM C779-76, "Standard Test Method for Abrasion Resistance of Horizontal Concrete Surfaces". The test provides impact and sliding friction under ball bearings to give rate of wear (depth) versus revaluation evaluations. A sample of five bricks may be tested in accordance with this procedure and if tested shall have an average abrasion index exceeding 1.5.

Resistance to Salt Attack

Resistance to salt attack shall be determined by the sodium sulphate test described in AS4456.10 2003. Pavers which are likely to be exposed to severe salt attack in service shall withstand 40 cycles of the test.

Liability to Efflorescence

Liability to efflorescence when determined in accordance with AS4456.6 2003 shall be described as nil to slight.

Absorption

Water absorption properties of the brick when determined in accordance with AS4456.17 shall be less than 12.5%. Variations between bricks tested in accordance with this method shall not exceed 2%.

Compressive Strength

The minimum characteristic compressive strength when determined in accordance with AS4456.4 :2003 shall be 28Mpa.

7.1 Method of Brickpaving Installation

Box out and Sub Base

The box out depth from the approved level finished height shall be a minimum of 300 m.m. This will accommodate for 200 m.m. of compacted limestone and a maximum of 30 m.m. yellow brickies sand compacted prior to placement of pavers.

Laying Paving Units

Paving units shall be placed on a compacted screeded sand bed to the 45^{o} Herringbone pattern, care being taken to maintain the specified bond throughout the job. Paving units shall be placed to achieve gaps nominally 2 m.m wide between adjacent units such that all joints are correctly aligned.

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

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 only be cut by using a mechanical power saw with a diamond blade. 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 use 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.

Concrete speed humps are to be provided at a distance or as determined by Executive Manager Technical Services or his representative, and constructed to Council specifications.

Compaction

After laying the paving units 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.

Damaged Units

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

Filling Joints

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

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

Acceptance Criteria for Paving

Initial acceptance and confirmation of Practical Completion will not be approved until the following criteria are satisfied;

i) 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,

ii) the pavers shall be true to shape with no transverse cracking or surface crazing,

iii) paving units shall be blended as required to ensure the colour of the pavement is uniform, and

iv) the surface texture to be uniform throughout.

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.