CONCRETE PATHWAY SPECIFICATION

As walking, cycling and the use of mobility scooters are now recognised as an integral part of our transport system, we have focused our attention on the design, construction and quality of our pathways. This specification has been drawn up to encourage usage and meet the expectations of the community by improving the quality, safety and look of pathways throughout the City of Greater Geraldton. Key outcomes are that pathways meet the desire lines of the user, flow well for the cyclist, provide comfort in the form of smooth, shady surfaces and are well defined and pleasing to the eye.

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GENERAL

The road verge levels shall be constructed to the approved cross-section of 2% positive grade from the top of the existing kerb. The City of Greater Geraldton pathways will be either constructed 500mm away from the back of the kerb (to meet Regional Bicycle Network Specifications) or constructed adjoining the back of the existing kerb.

The pathways are generally between 2.0m to 3.0m wide, typically 2.5m and 100mm to 150mm thick unreinforced grey concrete.

LAYOUT

Shared pathways widths and locations within the road reserve are specified in accordance with the City of Greater Geraldton's Bike Plan. The pathway layout shall be shown on the attached detailed plans, sections, details (including locations for tactile pavers) and location plans (please refer to FP110).

SET-OUT

The contractor is to set out all lines and levels for the pathway as directed by the Superintendent or as supplied approved drawings. It is the responsibility of the contractor to verify all dimensions and too accurately and securely position all formwork for the pathway construction.

Pathway levels will be as specified on-site or as per the approved construction drawings. The pathway is to be constructed with a 2% cross-fall to the top of the kerb, unless otherwise specified. Where the contractor finds the site congestion reduces the curved horizontal radii to below 10m, the pathway layout must be discussed with the Superintendent.

EXCAVATION

The contractor will be responsible for all excavations of the pathway bed to give a minimum of 100mm and a maximum of 120mm depth of concrete pavement, laid on a minimum of 50mm depth of clean sand.

Prior to commencing any works, the contractor shall be responsible, to obtain all relevant information concerning the location of any existing overhead or underground services which the works may affect. Please contact Dial Before You Dig on 1100 or www.1100.com.au. All care shall be taken not to disturb any benchmarks, survey or level pegs.

I. Excavation Width

Excavate no more than 0.5m wider on each side than the proposed pathway, i.e. a 2.5m pathway would require an excavation width of no greater than 3.5m.

II. Kerbing and Bitumen

All existing kerbing, pathways, crossovers etc. requiring removal will be removed by the contractor.

III. Reticulation

Where properties have a reticulated sprinkler system, which conflicts with the new pathway alignment, it shall be removed and replaced adjacent to the new pathway by the City of Greater Geraldton. Any removal and replacement of reticulation will need to be booked in advance by the contractor to allow the scheduling by the Principal to accommodate the existing budget program.

IV. Compaction

All excavation shall be thoroughly consolidated with a vibrating plate compactor or similar after moistening, shall be inspected, and approved prior to any concrete being placed.

Where in in-situ soil materials is, in the opinion of the Superintendent, not suitable for use as a base for the concrete structure, extra excavation will take place to allow for a minimum thickness of 50mm of clean sand to be placed. This thickness may vary depending on the characteristics and expected performance of the in-situ material. Imported sand is to meet the satisfaction of the Superintendent and may be charged at the schedule rates.

V. Service Lids and Street Furniture

Service Lids within the alignment may need to be adjusted to meet design levels of the pathway or replaced if deemed necessary by the Superintendent. The contractor shall carry out these works at the scheduled hourly rate. The City of Greater Geraldton will supply any required drainage products to be fitted by the contractor.

Non-regulatory signage that requires removal during works must be replaced prior to completion of the job, all other regulatory signage is to be relocated by the Superintendent and not under any circumstances removed from the site. Any removal and replacement of regulatory signage will need to be booked in advanced by the contractor to allow scheduling by the Principal to accommodate the existing budget program.

FORMWORK REQUIREMENTS

Formwork shall be provided in accordance with AS3610: Formwork for Concrete, to produce hardened concrete to the lines, levels and shapes shown on the drawings or specified elsewhere. It shall have adequate strength to carry all applied loads, including the pressure of fresh concrete, vibration loads, weight of workers

and equipment, without loss of shape. Forms shall be mortar tight and designed to allow removal without risk or damage to the completed structure. Joints in the formwork shall be perpendicular to the main axis of the shape of the concrete.

CONCRETE

All pathways are to be constructed with grey concrete unless otherwise stated. The cylinder compressive strength on a 28-day test must be at least 32 MPa to meet exposure classifications requirements outlined in AS3600 for grey concrete and the maximum aggregate size of 14mm with a slump of 50-80mm. All concrete supplied shall conform to AS1379: Specification and Supply of Concrete. Any variation to the specifications will need to be approved by the principal.

Contractors are to satisfy the City, that reliable and consistent supply of mix can be maintained in accordance with AS1379 and that a system is in place to ensure consistent slump is provided between loads to the site.

I. Placing Concrete

The base shall be thoroughly and evenly compacted and then evenly moistened with water (not saturated) immediately prior to placing of the concrete.

Concrete shall be evenly placed to a minimum depth of 100mm and shovelled into position continuously and spaded especially at all edges to give maximum density. No break in operations shall be permitted from time of placing concrete to finishing except as authorised by the Superintendent. When crossovers to properties are to be constructed, the depth and width shall be as per the City of Greater Geraldton's Crossover Specifications. Pram ramps shall be constructed as shown of City's plans or as directed by the Superintendent.

No concrete will be placed prior to an inspection and approvals by the Superintendent and notice of inspection is required to be given by 3:00pm on the day preceding the concrete pour, unless other prior arrangements are made.

II. Finishing Concrete

The concrete is to be bull-floated, trowelled and Roller finished right up to the joints and edges of the pathway. Joints are NOT edged with an edging tool. Concrete must be flush with top of the joints rubber cap. A course roller finish shall provide a non-slip, dense surface free of any depressions, float marks, jointing marks, honeycomb sections, or accumulation of fine dusty accretions liable to cause excessive surface wear.

The final surface finish shall be to the entire satisfaction of the Superintendent who shall reserve the right to require the removal of, or the correction of any surface deficiencies or finish.

JOINTS

I. Contraction Joints

The City uses a proprietary interlocking contraction joint system, call Lock Joint, to improve bike ride comfort and reduce vertical movement between concrete panels. Spacing's are a maximum of 2 times the width of the pathway. However, where Lock Joint is being installed on materials other than sand, the spacing must be reduced to a maximum of 1.5 times the width of the pathway (see Lock Joint Specifications for correct application of the system).

Lock Joint must be positioned to correctly match the finished concrete height. Concrete must be firmly shovelled around Lock Joint to fill all voids and maximise interlock. All jointing materials are to be supplied by the contractor.

Lock Joint system instructions must be adhered to.

II. Expansion Joints

An expansion joint should be placed every 50m in a straight, unhindered path or at the start of a deviation or a side entry pit in the pathway. This is done more as a precautionary measure, as the expected expansion of the concrete panels should be accommodated by the space (at either side of the Lock Joint piece) created by the natural shrinkage of the concrete panel. Construction of full depth of the concrete with a 12mm thick approved proprietary expansion material is required.

III. Isolation Joints

Isolation Isolation joints are to be constructed to expansion joint specifications. Isolation joints are to be placed around all pre-existing structures including crossovers, sewer, Telstra and similar type manholes and any other obstacles that may be in the way or need to be adjusted in the future.

Power and light poles etc. are to have a square section of expansion at 500mm radius from the object to allow for removal if required.

The following materials are approved for joints;

- Dimet – Jointex.
- Non Porite – Bitumen impregnated canite by the cold solvent process.
- Expandite – Flexcell or equal and approved.

CURING OF THE CONCRETE

Control of the curing if the concrete shall be carried out in a manner to ensure that shrinkage cracking does not occur. This may require the use of waterproof paper, polythene sheeting or a liquid membrane compound, which complies with ASTM Standard Specifications (C309-74).

TREATMENT AT CROSSOVERS

Where a pathway meets an existing crossover, it shall continue through the crossover at minimum150mm thick in accordance with the City's specifications for Crossovers (ISE06 and ISE07) to provide good continuity to the pathway user. The contractor is expected to adjust the adjacent panels/materials to meet crossover design specifications.

A site meeting between the contractor and Superintendent prior to commencement of the works will identify crossovers where this practice is unsuitable or unnecessary in which case the pathway should then abut the driveway as per drawing (please refer to FP110).

PRAM RAMPS

The contractor is to form pram ramps as per drawing (please refer to FP110); this shows the pram ramps standard and supplies a layout. Pram ramps are to be formed without a lip to give a smooth ride for wheelchairs, prams and bicycles.

REINSTATMENT

I. Backfill to Pathway

The contractor will be responsible for backfilling all disturbed surfaces. Backfill material is to be loam except for pathways constructed within the coastal reserve where localised sand is to be used (materials are to be specified by the Principal on each project).

II. Kerbing and Bituminous Surfaces

Reinstatement to kerbing, concrete paving or bituminous road surfaces damaged or disturbed during the course of the work will be the responsibility of the Contractor.

III. Grass

The City of Greater Geraldton will be responsible for all reinstatement of grass. All vehicles are to access the worksites as directed by the Superintendent.

POLYMER CEMENT SPRAY COATING

When this is required, the contractor is to provide spray on concrete textures using high strength polymer cement coating to new and existing works.

SERVICES

It will be the responsibility of the contractor to ascertain what underground servicers are present and to contact the relevant authorities (Western Power, Telstra, Water Corporation, etc.) if necessary for a location prior to excavation. The cost (if any) of these locations are to the responsibility of the contactor.

MAINTENANCE CLAUSE

There will be a twelve-month maintenance period, with the period commencing from the day of inspection of the completed pathway.

TESTING

The The contractor shall, if required, supply the City of Greater Geraldton with concrete batch details of the pathway as supplied by the concrete supplier, showing mix details, slump and compressive strength details.

ITEMS NOT COVERED IN THIS SPECIFICATION

Should there be any items of work or administrative elements not covered by this specification that the appropriate section of the City of Greater Geraldton's Land Development Specifications (latest revision) should prevail.

A copy of the City of Greater Geraldton's Land Development Specifications can be found on the City's website www.cgg.wa.gov.au.