INFRASTRUCTURE DEPARTMENT

TECHNICAL SPECIFICATION FOR CONCRETE FOOTPATH CONSTRUCTION
1. **SCOPE**

This shall be the Technical Specification for Concrete Footpath Construction within the Copper Coast District.

The work to be executed under this specification consists of the supply and placement of concrete and ancillary requirements like public safety, excavation, preparation of foundations, forming up and backfilling of work. These Works include footpaths and wheelchair ramps.

2. **REFERENCE DOCUMENTS**

Documents reference in this Specification are listed in full below whilst being cited in the text in the abbreviated form or code indicated.

**Australian Standards**

- **AS 1012.1** Sampling fresh concrete
- **AS 1012.3.1** Determination of properties related to the consistency of concrete - SlumTest.
- **AS 1012.8** Making and curing concrete compression, indirect tensile and flexure test specimens in the laboratory or in the field.
- **AS 1012.9** Determination of the compressive strength of concrete specimens.
- **AS 1012.14** Securing and testing cores from hardened concrete for Compressive strength.
- **AS 1141.14** Particle shape by proportional calliper
- **AS 1141.21** Aggregate crushing value
- **AS 1141.23** Los Angeles value
- **AS 1141.24** Soundless (by use of sodium sulphate solution)
- **AS 1289.3.3.1** Calculation of plasticity index of a soil
- **AS 1289.5.1.1** Determination of the dry density/moisture content relation of a soil using standard compactive effort
- **AS 1289.5.2.1** Determination of the dry density/moisture content relation of a soil using modified compactive effort
- **AS 1289.5.4.1** Compaction control test – Dry density ratio, moisture variation and moisture ratio.
- **AS 1302** Steel reinforcing bars for concrete
- **AS 1303** Steel reinforcing wire for concrete
- **AS 1304** Welded wire reinforcing fabric for concrete
- **AS 1379** The specification and manufacture of concrete
- **AS 1478** Chemical admixtures for concrete
- **AS/NZS 1859** Reconstituted wood-based panels
- **AS 2082** Visually stress-graded hardwood for structural purposes
- **AS 2271** Plywood and blockboard for exterior use
- **AS 2758.1** Concrete aggregates
- **AS 3600** Concrete structures
- **AS 3610** Formwork for concrete
- **AS 3799** Liquid membrane-forming curing compounds for concrete
- **AS 3972** Portland and blended cements
- **AS1742.3** Traffic Control for Works on Roads
3. **PUBLIC SAFETY**

The Contractor shall be responsible for Public Safety including pedestrian and vehicular in accordance with Australian Standard AS 1742.3 and the Disability Discrimination Act. Alternative routes shall be signed for pedestrians around the works. All bunting and flashing bollards shall be installed around the works and maintained until the paths are reopened to the public.

4. **EXCAVATION:**

(1) The subgrade, shall be formed at the required depth below the finished surface levels. Rock foundations shall be neatly excavated to form a bed for the concrete, and shall be thoroughly scraped and cleaned. Soil foundation shall, as far as possible, be excavated neatly from the solid material to coincide with the underside of the subbase material.

(2) All soft, yielding or other unsuitable material shall be replaced with sound material approved by the Superintendent, and the subgrade shall be compacted to provide a minimum relative compaction of 95 per cent as determined by AS 1289.5.4.1 for standard compactive effort. If the subgrade is dry it shall be sprinkled with as much water as it will absorb, before the concrete is placed.

5. **PLANS AND SURVEY:**

The Contractor shall be responsible for setting out the footpaths accurately to line and level in accordance with the instruction supplied, and arrangements must be made with the Developer or Council to have the setting out checked prior to the work commencing. All soil including old concrete paths shall be removed from the site and the area kept neat and tidy to ensure minimum obstruction to traffic ways during the course of the work. No stockpiling of excavations shall be left on verges.

Unless otherwise directed by the Council the level of all footpaths shall be such as that the finish level is the existing top of kerb with a 2% fall to the kerb (i.e. 30mm crossfall for 1.5m wide footpath)

6. **DIMENSIONS:**

**SUB-BASE:**

The subgrade is to be covered with 75 mm of fine crushed rock (maximum nominal size 20mm, the material shall be thoroughly compacted by rolling.

**FOOTPATH:**

A minimum thickness of 100mm of concrete is required for all paths unless otherwise specified. The concrete footpaths shall be 1.5m wide located parallel to existing kerb lines, and shall be constructed accurately true to line and level within a tolerance of 6 mm. At street corners the path shall be extended to the kerbing and comply with Disabled Ramps (SK 753-B)
7. **FORMWORK:**

   Formwork may be of either steel or planed timber and shall be fixed so as not to flex or displace during concreting operations. Formwork shall be of dimensions equal in depth to the thickness of the concrete to be poured.

8. **JOINTS:**

   Joints shall be provided at intervals of not more than 1.5m along the length of the footpath and either side of driveways.

   Approved expansion joints shall be provided at not more than 18m intervals along the footpath. These joints shall be 10 mm wide and for the full depth of the concrete pavement shall be filled with an approved expansion jointing material such as bitumen or other flexible material such as plastic or bitumen impregnated fibre, refer to standard footpath details.

9. **CONCRETE:**

   Ready mixed concrete conforming to relevant Australian Standards and to the standards outlined in this specification shall be used for this work. Concrete shall have a minimum 28 day strength of 25 M.Pa and have a slump of 80 mm. Maximum aggregated size shall be 20mm. Sand shall be clean, sharp, washed river or quarry sand, free from silt and organic matter.

   Tests of concrete will be taken at locations and intervals of time at the discretion of the Council. Materials not satisfactory shall be removed and shall be replaced by the Contractor at the contractors cost.

   The sub-grade and subbase shall be moistened immediately prior to the placing of concrete. No concrete pouring shall take place during rain, or when the shade temperature exceeds 38°C.

   All concrete is to be thoroughly consolidated. A broom finish is required across the footpath slabs, or an exposed aggregate finish approved by Council. All joints and edges are to be finished with an edging tool.

   Mesh is required for all paths and is to be F62 retained in a suitable state free of rust at all times. Fortecon is required between the base of the concrete and the rubble as per the standard detail detail attached. The fortecon is to have no penetrations prior to placement of the concrete.

   The surface of the concrete shall be kept damp for 7 days, and/or the surface shall be sealed by using curing oils or sealing compounds submitted and approved by and on the Councils direction. All exposed surfaces of the finished slabs shall be covered with thick opaque polythene or other approved sheeting, for a period of at least 24 hours to avoid damage by rain or too rapid drying in the heat. Adequate protection shall be given to the work until cured.

   Plastering of the finished surface and the use of dryers is prohibited. Repairs to the surface may be made only with the permission of the Council.

   The contractor shall be responsible for replacing any damaged or defective concrete work due to any cause whatsoever including graffiti in the period of one week following the pouring of the concrete. The edges of the paths shall be trimmed of excessive concrete to form a clean vertical edge.
10 **LOADS ON MINOR CONCRETE STRUCTURES:**

No superimposed load shall be allowed on any part of what will become a load bearing structure within 21 days after placing concrete unless the structure is effectively and independently supported to the satisfaction of the Superintendent or when the Contractor can demonstrate that 95 per cent of the design strength of the concrete has been achieved.

11 **BACKFILL:**

Not sooner than seven days after placing the concrete, the space behind the footpath and between the footpath and kerbing where applicable, shall be backfilled relevelled and raked smooth with approved material and lightly compacted to the approved grades and levels.

12 **SERVICES, INSPECTION OPENINGS, ETC. PUBLIC UTILITIES:**

No work is to be commenced before service authorities have been notified and services have been located. The contractor is responsible for all service locations and associated costs.

The Contractor shall make all arrangements with the appropriate authorities – SA Water, Origin Energy, Telstra and ETSA, for the relocation or alteration of any public utility service inspection opening, etc. which may be necessary for the completion of the work.

Inspection openings shall be adjusted to the level of the finished footpath.

The Contractor shall be responsible for any damage done to public utility services, inspection openings, etc. sustained as a result of the works.

13 **COUNCIL OR PRIVATE PROPERTY:**

The Contractor shall be responsible for any damage caused to Council or private property adjacent to the works. The council may repair any council infrastructure damaged by the contractor and recover the associated costs from the contractor.