

Roads

Master Specification

RD-EW-C3 Boring

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RD-EW-C3 Boring

1 General

- 1.1 This Part specifies the requirements for the installation of culverts, cables, conduits and pipes (“Services”) under roads, railway tracks and structures by boring. For the purposes of this part, boring includes any trenchless method (i.e. thrust boring, directional boring /drilling and tunnelling).
- 1.2 Documents referenced in this Part are listed below:
 - a) AS 4799 Installation of Underground Utility Services and Pipelines within Railway Boundaries.

2 Quality Requirements

- 2.1 Boring must be undertaken using industry best practice whenever:
 - a) the bore diameter exceeds 500 mm;
 - b) multiple conduits are installed in a single bore; or
 - c) the Service is to be installed under a railway.
- 2.2 The Contractor shall conduct a review of available geotechnical information. If the available information is insufficient and does not allow the confirmation of subsurface conditions then additional investigation is required.
- 2.3 Subsequent to confirmation of the subsurface materials, a Quality Plan must be prepared that includes the following documentation at a minimum:
 - a) full details of the methodology to be used; and
 - b) details of equipment to be used.
 - c) Monitoring plan to detect movements at the surface of road and rail infrastructure during boring operations.
- 2.4 If not submitted beforehand, the documentation required by this Clause must be submitted at least 7 days prior to the commencement of site work.
- 2.5 Provision of the documentation listed in this Clause must constitute a **Hold Point**.

3 Installation

- 3.1 The installation of the Service must not disturb or damage any pavement, railway infrastructure or other structure in any way.
- 3.2 Where multiple bores or tunnels are used, there must be a minimum spacing of 10D (where D is the diameter of the largest conduit or service) between individual bores or tunnels to ensure the combined surrounding cavities of multiple bores or tunnels do not undermine any pavement, railway tracks and formation or structure. Boring by water jetting is not permitted. Where the Service is installed by thrusting, the initial borehole must be not less than 90% of the overall diameter of the Service.
- 3.3 Services installed under road pavement and shoulders by under-road boring must have a minimum cover of 1.5 m below the surface.
- 3.4 Services installed under railway tracks by under track boring must have a minimum of 2 m cover from the top of the existing rail and a minimum cover of 1.5 m below the surface elsewhere.

4 Boring under roads

- 4.1 This clause only applies where a Service is to be installed under a road pavement.

- 4.2 Where a Service is to be installed longitudinally under a road pavement, the use of under-road boring in preference to the excavation and reinstatement of trenches is encouraged.
- 4.3 Where a Service is to be installed transversely under a road pavement, the use of under-road boring to install the Service is mandatory, unless prior written approval of the Principal has been obtained or the full road pavement is to be reconstructed after the Service has been installed.

5 Boring under railway tracks

General

- 5.1 This clause only applies where a Service is to be installed under railway tracks.
- 5.2 Boring must be used for the installation of the Service unless the Service is to be installed in conjunction with new formation work or the geotechnical conditions (such as the presence of rock or loose sand) makes the use of boring impracticable.
- 5.3 All boring under railway tracks must be in accordance with AS 4799. Any underground bore larger than 150 mm diameter must not be carried out whilst trains are operating.

Adelaide Metropolitan Passenger Rail Network (AMPRN)

- 5.4 The Contractor must arrange a Track Inspector in accordance with the relevant part of the Department's Master Specification to inspect the completed works prior to the commencement of any train services.
- 5.5 Inspection of the works shall constitute a **Hold Point**.

ARTC and Other Rail Authorities Railway Tracks

- 5.6 The Contractor must arrange with the Australian Rail Track Corporation (ARTC) or other Rail Authority as applicable to inspect the track in the vicinity of the bore and certify that the track is safe for train operations prior to the commencement of any train services.
- 5.7 Certification of the track shall constitute a **Hold Point**.

6 Hold Points

The following is a summary of Hold Points referenced in this Part:

Document Ref.	Hold point	Response time
2.4	Submission of Quality Plan	7 working days
5.5	Inspection of completed boring Under Railway Tracks - AMPRN	1 working day
5.7	Certification of completed boring Under Railway Tracks – External Rail Authorities	1 working day

7 Verification Requirements and Records

Where the bore diameter exceeds 500 mm or multiple conduits are installed in a single bore, the Contractor must supply a completion report within 2 weeks of completion of the installation. The report must guarantee the appropriateness of the method used (covering depth etc.) and the quality of work and include records of ground surface movements. The report must be prepared by a Professional Engineer who has experience with trenchless installation methodologies.