



AUSTRALIAN RAIL TRACK CORPORATION LTD

Discipline  
Engineering Specification

Category  
Track & Civil

# General Appendix to ARTC Track & Civil Code of Practice

## Specification Clauses

# Flooding

# ETG-10-01

### Applicability

ARTC Network wide	
New South Wales	
Western Jurisdiction	✓
Victoria	✓

### Primary Source

(ARTC A1 Specification Waterways and Drainage - Design & Rating/TCS-26)

### Document Status Record

Status	Date	Prepared	Reviewed	Endorsed	Approved
Issue 1 Revision 0	May 06	Standards & Systems	Manager Standards & Systems	GM Infrastructure Strategy & Performance	Safety Committee

### List of Amendments

Issue	Date	Clause	Description
1.0	01/05/2006		First issue

### Disclaimer

This document is for internal use by the Australian Rail Track Corporation Ltd ("ARTC") only and may not be relied on by any other party. ARTC:

1. does not accept any liability or responsibility whatsoever for this Document in respect of any use or reliance upon it by any other party; and
2. does not provide any warranty as to the accuracy or reliability of this Document.

## 10.7. Flooding

### 10.7.1 Design Return Period for Flood Loading for New Waterways and Drainage

All new waterways and drains are to be designed in accordance with Australian Rainfall and Runoff and Bridge Design Code.

When deciding on the return precipitation event for a particular waterway or drainage system the following are to be taken into account:

- Rated capacity of adjacent waterways on line or track section
- Locality, whether in remote, rural or city/suburban areas
- Risk of damage to outside parties from flooding causes by railway drainage structures
- Frequency and length of time of track closures that can be tolerated operationally.

The following shall be used as a guide:

- Major under track bridges            100 year precipitation event
- Minor under track bridges            50 year precipitation event
- Under track culverts and drains    50 year precipitation event
- Levees                                      50 year precipitation event

The effect of a 100 year precipitation event should be considered.

### 10.7.2 Drainage Systems and Structures Owned By Other Parties

Where drainage systems and structures owned by another person or organisation is considered to present an unacceptable risk to the safe passage of trains, the following action shall be taken:

- Consider the need to impose operational restrictions or other means to reduce any immediate risk.
- Advise ARTC of the circumstances

### 10.7.3 Reporting of Flood Events

A report is to be provided to ARTC following significant flood events, including any effects on ARTC infrastructure.

### 10.7.4 Response to Defects in Track Drains and Cesses

The response to defects in the condition of track drains and cesses shall be in accordance with the following Table 10.1. See note below.

**Table 10.1**

<b>Defect</b>	<b>Response Time</b>	<b>Action</b>
Blockage or partial blockage of waterway > 20% loss of area due to debris, rubbish or siltation	28 days	Repair/restore waterway so that it effectively carries out its intended function
Loss of shape in cross section	90 days	Repair/restore waterway so that it effectively carries out its intended function
Loss of longitudinal continuity	90 days	Repair/restore waterway so that it effectively carries out its intended function
Erosion or damage to levee banks or channels	90 days	Repair/restore waterway so that it effectively carries out its intended function

### 10.7.5 Response to Defects in Waterways

The response to defects in the condition of waterways shall be in accordance with the following Table 10.2. See note below.

**Table 10.2**

<b>Defect</b>	<b>Response Time</b>	<b>Action</b>
Scour of formation	As soon as practicable	Apply temporary speed restriction as determined by severity of defect. Assess and repair or replace
Scouring around foundations or abutments and wingwalls, or temporary supports. Scouring around culvert end walls and barrels	As soon as practicable	Apply temporary speed restriction as determined by severity of defect. Assess and repair or replace
Culvert/drain barrel damage or collapse	As soon as practicable	Apply temporary speed restriction as determined by severity of defect. Assess and repair or replace
Blockage or partial blockage of the waterway > 20% loss of area due to debris, rubbish or siltation	28 days	Repair waterway
Erosion or damage to channels. Erosion or damage to levee banks	56 days	Repair/restore defective areas
Ineffective or defective sumps	28 days	Repair
Developments in adjoining properties that may change water flows	As soon as practicable	Notify ARTC of circumstances

#### NOTE

The response times shown in tables 10.1 and 10.2 are the absolute maximum. The actual response times should be as short as practicable, taking into account the timing of the next expected rainy season and the risk profile involved.