Guidelines will continue to be adopted. That is, the pipe invert levels shown on pit schedules and drainage longitudinal are the imaginary invert levels of the pipes extended to the centre of the pit shaft. Standard Drawing SD1002 has been created to explain this practice.

For pipes laid on steep slopes and/or wide haunched pits, the actual inlet and outlet pipe invert levels at the pit walls may be shown on the drainage longitudinals and on the pit schedule, if requested by the project manager. In this case a note should be placed on the drawing clearly indicating where the levels have been given.

4.2 Pit invert levels

The pit invert level is the level at the top of the pit base slab.

The old convention using the outlet pipe invert level at the centre of the pit shaft to represent the pit invert level is no longer applicable. Where the depth of pit ‘D’ is to be indicated in a pit schedule, it will now represent the true depth of pit, i.e., the difference between the pit invert level, and level of the pit set-out point at the top of the pit.

The relationship between the outlet pipe invert level at the centre of the pit shaft and the pit invert level is shown on Standard Drawing SD1002 and it is given below:

\[
\text{Pit invert level} = \text{Outlet pipe invert level} - X - T
\]

where:
- \( X \) is the level difference between the outlet pipe invert levels at the centre of the pit shaft and at the pit wall;
- \( T \) is the level difference between the outlet pipe invert level at the pit wall and the invert level of the pit.

Dimension \( T \) nominally represents the pipe wall thickness with the intent being to lay the lowest pipe on top of the pit base slab. Pipe wall thicknesses are indicated in the table included on SD1002. In order to simplify invert level calculations and to aid in shaping the bottom of pits a minimum value of 60 mm is to be adopted for \( T \).

No special provision needs to be made for spigot and socket pipes.

Dimension \( X \) is usually very small (less than 5mm) and can be neglected unless the outlet pipe is to be laid on a steep slope (1 in 70 or steeper) and/or the pit base is wider than the standard pit base of 750mm.
References
Supersedes RDN 09-06a (March 1997)
Specified sections of AGRD Part 5
Specified sections of AGRD Part 5 – VicRoads Supplement
VicRoads Road Design Guideline Part 7
VicRoads Standard Drawings for Roadworks

Approved by

David Barton
PRINCIPAL ROAD DESIGN ENGINEER
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Road Design Notes are subject to periodic review and may be superseded.
For further information please phone 13 11 71 or visit vicroads.vic.gov.au

![Diagram of pit and pipe invert levels]

### Table of Pipe Thicknesses

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<th>Class 6</th>
<th>Class 7</th>
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Notes:

1. This drawing is intended to clarify the positions of the pit and pipe invert levels, and the depth of pit at shown on the pit schedules. The pipe invert levels are the projected levels to the centre of the pit (shaft) as shown they are not the actual invert levels at the pit walls.

2. Pipe sizes and/or pipe materials may vary depending on the pipe invert levels shown at the pit sites. All pipe invert levels should be drawn at the pit walls on the drainage longitudinal unless otherwise agreed with the project manager.

3. The thickness of pipe invert level = outer pipe invert level - 50 mm (yes, 50 mm). The thickness of pipe invert level = outer pipe invert level - 50 mm unless otherwise agreed with the project manager.

4. Class 1 pipes are pipes reinforced concrete pipes.

5. All dimensions are in kilometres unless shown otherwise.

Refer to Design Note 3 for further explanation.

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**Diagram Notes:**

- Dimensioned at points A, B, C, D, E, F, G, H, and I.
- All dimensions shown in millimetres.
- Scale: 1:50
- All relevant details are shown in plan view.

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**Design Note:**

1. Depth of pit and pipe invert levels are shown at the pit sites.
2. Pipe invert levels are shown at the pit walls on the drainage longitudinal.
3. All pipe invert levels are shown at the pit sites.