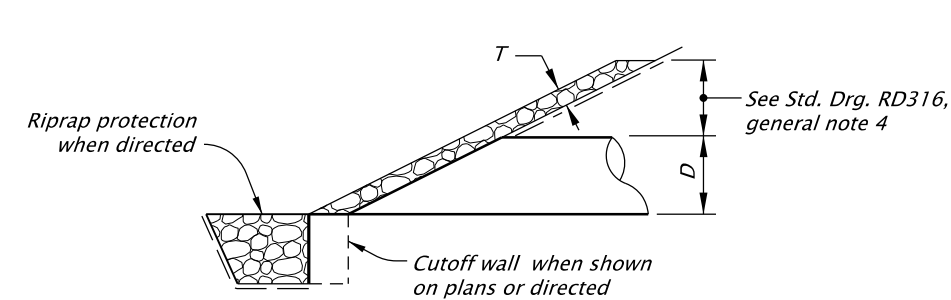


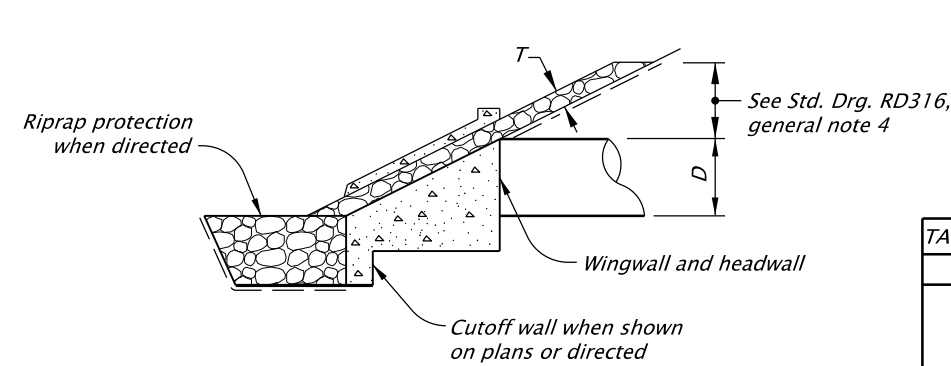
SECTION A-A

SLOPED OR PROJECTING END



SECTION B-B

SLOPED END WITH SLOPE PAVING

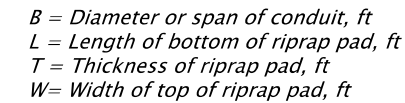


SECTION C-C

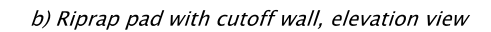
HEADWALL AND WINGWALLS

B = Diameter of circular barrel or span of arch pipe, box, or open-bottom arch.
 D = Diameter of circular barrel or rise of arch pipe, box, or open-bottom arch.
 T = Thickness of riprap blanket, see Table A.

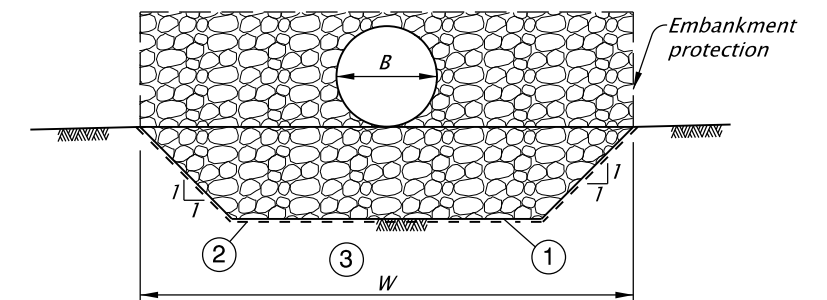
EMBANKMENT PROTECTION



a) Riprap pad without cutoff wall, elevation view



RIPRAP PADS



c) Riprap pad, end view

RIPRAP PAD NOTES:

- ① Do not excavate non-erodible rock in order to place riprap.
- ② Use riprap geotextile under Class 200 and Class 700 loose riprap.
- ③ Top width (W) of the riprap pad is the larger of 5B or the width of the embankment slope protection.

GENERAL NOTES FOR ALL DETAILS:

1. See Std. Drg's. RD300 & RD304 for installation details.
2. Open ends of pipes normally require a site specific design, and may require special treatment (sloped ends, culvert embankment protection, paved end slopes, safety end sections, or other measures).
See special details or Standard Drawings as called for on plans.

The selection and use of this Standard Drawing, while designed in accordance with generally accepted engineering principles and practices, is the sole responsibility of the user and should not be used without first consulting a Registered Professional Engineer.

All materials shall be in accordance with the current Oregon Standard Specifications.

**OREGON STANDARD DRAWINGS
CULVERT EMBANKMENT
PROTECTION
AND RIPRAP PADS**

2024

DATE	REVISION	DESCRIPTION

CALC.
BOOK NO. - - - N/A - - -

SDR
DATE - 30-JUN-2022 -

RD317

Effective Date: June 1, 2026 – November 30, 2026