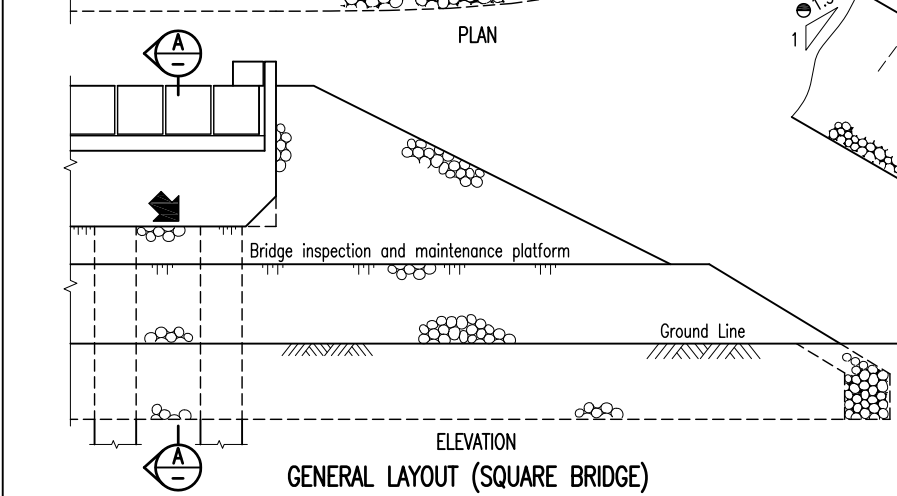
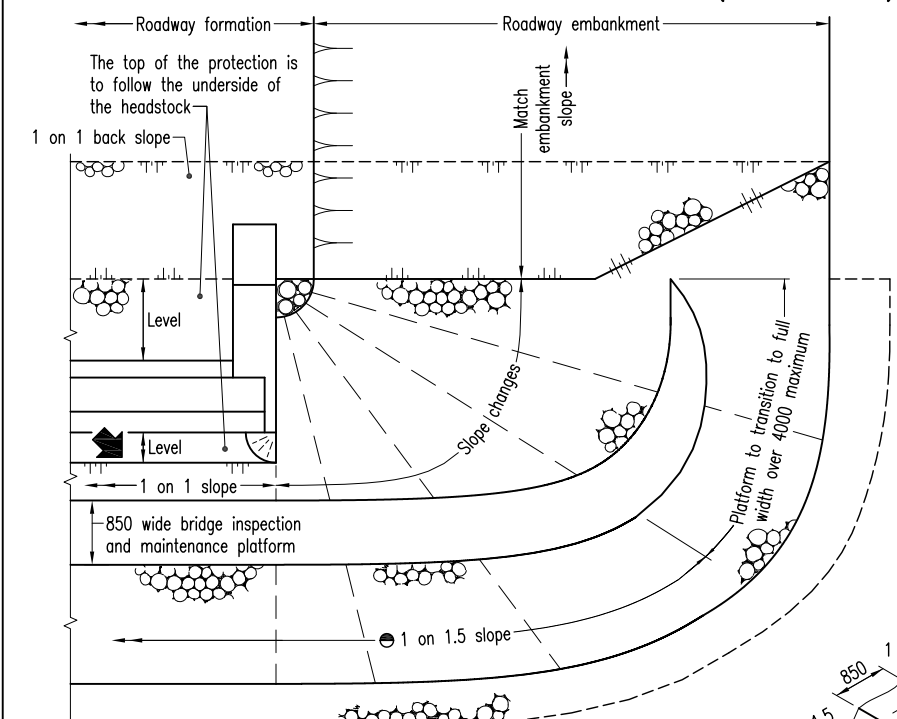


PLAN GENERAL LAYOUT (SKEWED BRIDGE)



ELEVATION GENERAL LAYOUT (SQUARE BRIDGE)

DESIGN CRITERIA

The purpose of this drawing is to provide standard details only and fitness for purpose shall conform to AS 5100. The details shall be determined and certified by the bridge design engineer. Because every abutment protection is designed to suit its specific location, this drawing shall be read in conjunction with the project specific drawings.

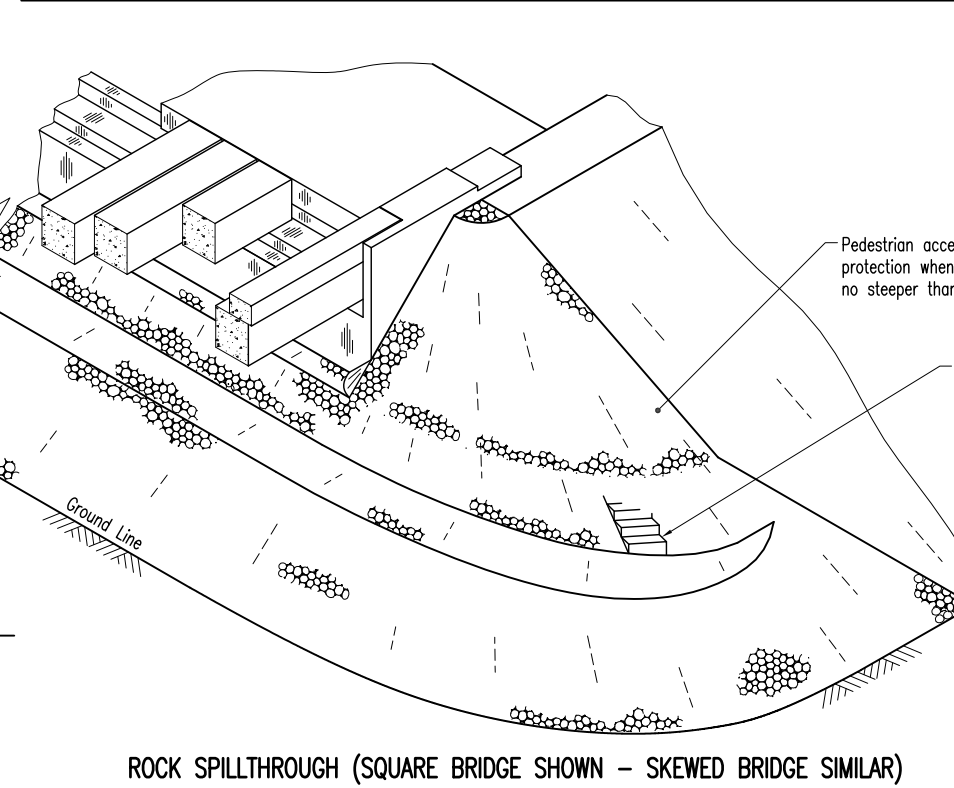
In accordance with Workplace Health and Safety requirements, abutment headstocks must be easily accessible to allow them to be inspected and maintained. Where the clearance is no greater than 1700 high, this can be done by walking around the base of the protection (refer to Standard Drawing 2232). If the clearance is greater than 1700, a platform shall be provided 1700 from the underside of the bridge.

Provided that the roadway embankment is no steeper than 1 on 2, access to the platform shall be by walking down the side of the protection. If the embankment is steeper than 1 on 2, a risk assessment shall determine the best method of accessing the platform. This may be by constructing a staircase in the protection and/or by casting inserts into the headstock to attach a safety harness (refer DETAIL 1). Roadway embankments steeper than 1 on 2 must be protected.

When designing abutment protection, consideration must be given to the strength of the subgrade material. The rock spillthrough shall be placed to profile before the deck units/girders are erected on the end span.

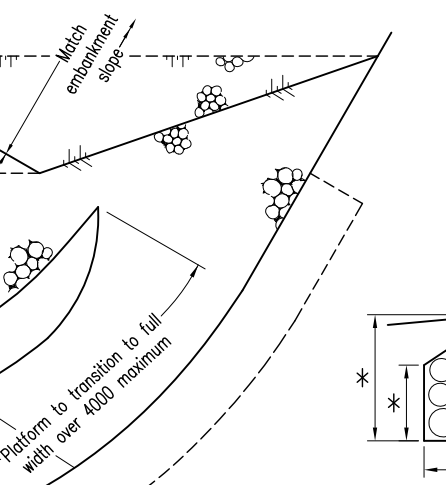
The possibility of scour at the protection must be assessed at each abutment. Toe walls (Type A and B) are only suitable for low scour situations. The protection may need to be modified in high scour situations.

Prestressed piles shall be adequately protected to avoid potential damage from falling rocks while the rock is being placed.

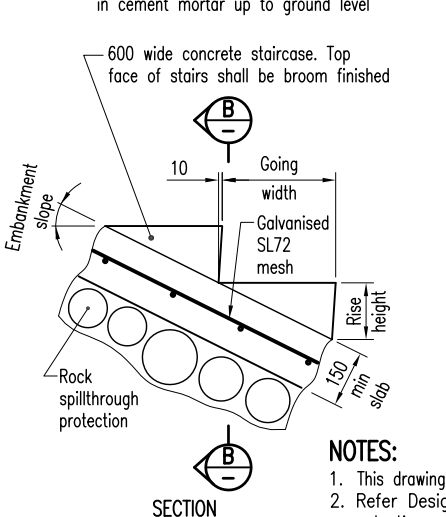
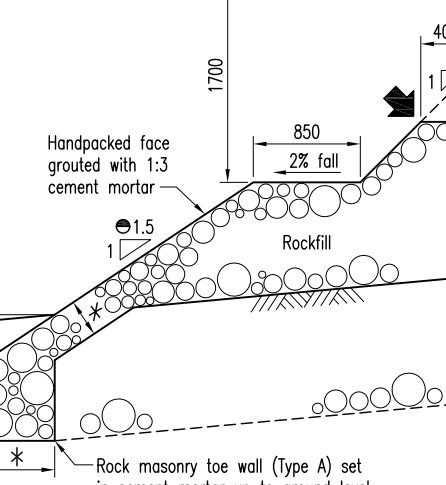


ROCK SPILLTHROUGH (SQUARE BRIDGE SHOWN - SKEWED BRIDGE SIMILAR)

ALTERNATE TOE WALL DETAILS (TYPE B)



SECTION STEP DETAILS



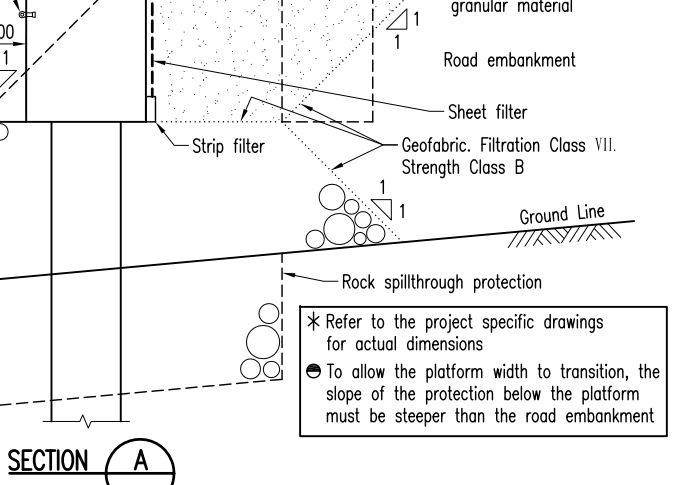
SECTION B

STAIR DIMENSIONS

Embankment slope	Going width	Rise height
1 on 1 (45°)	215	215
1 on 1.5 (33.7°)	263	175
1 on 2 (26.6°)	300	150

★ Refer to AS 1657 for step details for alternate slopes

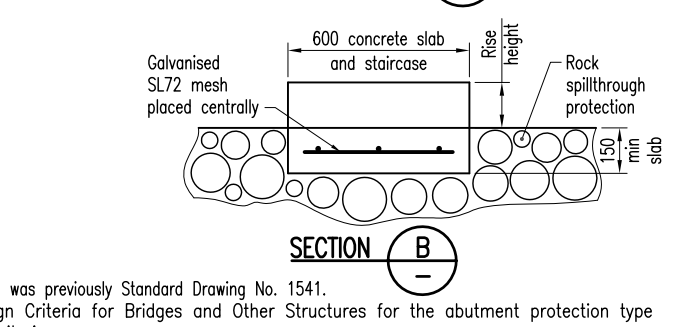
SECTION A



Stainless steel insert 'Ramset FE16070SS' or approved equivalent with R10 x 400 long cross bar bent at 45° behind the reinforcing cage. Inserts to be at 1500 c/s maximum. For location details refer to the project specific bridge drawings.

M16 collared eyebolts shall be attached to support a safety harness for inspection and maintenance.

DETAIL 1



SECTION B

NOTES:

- This drawing was previously Standard Drawing No. 1541.
- Refer Design Criteria for Bridges and Other Structures for the abutment protection type selection criteria.
- CONCRETE class to be N25/20. Exposure classification B2.
- STEEL REINFORCEMENT to be read in conjunction with Std Drg 1044. Reinforcing steel to be in accordance with AS/NZS 4671. Round bars Grade R250N. All reinforcing steel to be ACRS certified. Cover to be 55 minimum unless shown otherwise. Reinforcement to be hot dip galvanised to AS/NZS 4680 where shown.
- TACK WELDING for location purposes to AS/NZS 1554.3 Clauses 3.3.1 and 3.3.2. Welding consumables to be E4916, E4918 and W50X.
- DIMENSIONS are in millimetres unless shown otherwise.
- SETTING OUT POINTS shown thus

ASSOCIATED DEPARTMENTAL DOCUMENTS:

Standard Drawings; Specifications; Bridge Scour Manual; Design Criteria for Bridges and Other Structures

REFERENCED DOCUMENTS:

Departmental Standard Drawings:  
1044 Reinforcing Steel - Standard Hook, Lap and Bend Details and General Steel Reinforcement Information

2232 Abutment Protection - Type 1 - Rock Spillthrough - up to 1700 Clearance

Australian Standards:

AS/NZS 1554.3 Welding of Reinforcing Steel  
AS 1657 Fixed Platforms, Walkways, Stairways and Ladders-Design, Construction & Installation

AS 2317 Collared Eyebolts  
AS 4671 Steel Reinforcing Materials

AS/NZS 4680 Hot-dip Galvanised (Zinc) Coatings on Fabricated Ferrous Articles  
AS 5100 Set Bridge Design

Legislation: Work Health and Safety Act 2011; Work Health and Safety Regulations 2011

Note: The purpose of this drawing is to provide typical standard details. The fitness for purpose of this drawing for a specific project shall be determined and certified by a RPEQ engineer. Project specific details may be required to be included in the scheme drawings.

Department of Transport and Main Roads			
ABUTMENT PROTECTION			
TYPE 1 - ROCK SPILLTHROUGH - GREATER THAN 1700 CLEARANCE		A3	Standard Drawing No
		Not to Scale	2233
		A	Date 4/15