TYPE RAO
OUTER TRAFFIC BARRIER TYPE RAO SHOWN
INNER TRAFFIC BARRIER TYPE RAI SIMILAR
(NO PROVISION FOR CYCLISTS)

M24 x 380 HIGH STRENGTH
STEEL BOLTS (75 NOM
PROTRUSION) WITH NUT, THIN
NUT AND 4 THICK PLATE
WASHER (TYP)

50 x 60 x 20 DEEP FORMED
RECESSES SHALL BE FILLED
WITH GROUT

THIS FACE MUST BE
VERTICAL FOR INNER
TRAFFIC BARRIER TYPE RAI

FINISHED DECK LEVEL

M24 x 380 HIGH STRENGTH
STEEL BOLTS (75 NOM
PROTRUSION) WITH NUT, THIN
NUT AND 4 THICK PLATE
WASHER (TYP)

60 x 60 x 20 DEEP FORMED
RECESSES SHALL BE FILLED
WITH GROUT

THIS FACE MUST BE
VERTICAL FOR INNER
TRAFFIC BARRIER TYPE RAI

FINISHED DECK LEVEL

TYPE RBO
OUTER TRAFFIC BARRIER TYPE RBO SHOWN
INNER TRAFFIC BARRIER TYPE RBI SIMILAR
(PROVISION FOR CYCLISTS)

M20 x 320 HIGH STRENGTH
STEEL BOLTS (65 NOM
PROTRUSION) WITH NUT, THIN
NUT AND 3 THICK PLATE
WASHER (TYP)

75 x 10 FLAT, TOP RAIL
Ø12 BALUSTRADE
AT 120 CENTRES

75 x 10 FLAT, TERMINAL
75 x 10 FLAT, BOTTOM RAIL
40 x 40 x 20 DEEP FORMED
RECESSES SHALL BE FILLED
WITH GROUT

M12 x 200 HIGH STRENGTH
STEEL BOLTS (75 NOM
PROTRUSION) WITH NUT, THIN
NUT AND 3 THICK PLATE
WASHER (TYP)

CONCRETE BARRIER

THIS OUTER FACE MUST BE
VERTICAL FOR INNER
TRAFFIC BARRIER TYPE RBI

FINISHED DECK LEVEL

TYPE RCO
MID/WAY TRAFFIC BARRIER TYPE RCO
(NO PROVISION FOR CYCLISTS)

M20 x 320 HIGH STRENGTH
STEEL BOLTS (75 NOM
PROTRUSION) WITH NUT, THIN
NUT AND 4 THICK PLATE
WASHER (TYP)

60 x 60 x 20 DEEP FORMED
RECESSES SHALL BE FILLED
WITH GROUT

THIS FACE MUST BE
VERTICAL FOR INNER
TRAFFIC BARRIER TYPE RCO

FINISHED DECK LEVEL

M20 x 320 HIGH STRENGTH
STEEL BOLTS (75 NOM
PROTRUSION) WITH NUT, THIN
NUT AND 4 THICK PLATE
WASHER (TYP)

60 x 60 x 20 DEEP FORMED
RECESSES SHALL BE FILLED
WITH GROUT

THIS FACE MUST BE
VERTICAL FOR INNER
TRAFFIC BARRIER TYPE RCO

FINISHED DECK LEVEL

TYPE RDO
OUTER TRAFFIC BARRIER TYPE RDO SHOWN
INNER TRAFFIC BARRIER TYPE RDI SIMILAR
(PROVISION FOR PEDESTRIANS AND CYCLISTS)

M20 x 320 HIGH STRENGTH
STEEL BOLTS (75 NOM
PROTRUSION) WITH NUT, THIN
NUT AND 3 THICK PLATE
WASHER (TYP)

75 x 10 FLAT, TOP RAIL
Ø12 BALUSTRADE
AT 120 CENTRES

75 x 10 FLAT, TERMINAL
75 x 10 FLAT, BOTTOM RAIL
40 x 40 x 20 DEEP FORMED
RECESSES SHALL BE FILLED
WITH GROUT

M12 x 200 HIGH STRENGTH
STEEL BOLTS (75 NOM
PROTRUSION) WITH NUT, THIN
NUT AND 3 THICK PLATE
WASHER (TYP)

CONCRETE BARRIER

THIS OUTER face MUST BE
VERTICAL FOR INNER
TRAFFIC BARRIER TYPE RDI

FINISHED DECK LEVEL

LARGE SERIES WASHERS TO SUIT BOLT SIZES SHOWN MAY BE USED INSTEAD OF PLATE WASHERS

GENERAL NOTES

SCALE 1:50 OR AS SHOWN.

DESIGN ASSUMPTIONS:
MAXIMUM POST SPACING: 2.70m
POST SPACING TO SUIT PRECAST PARAPET UNITS, SAFETY SCREEN PANELS OR NOISEWALL PANELS AS REQUIRED.

CONCRETE EXPOSURE CLASSIFICATION: B1
MINIMUM 28 DAY COMpressive STRENGTH OF CONCRETE: 40MPa
10 x 10 Chamfer shall be used at top corners of Concrete Profile
Steel Plate shall, conform to AS/NZS 3787 - 250.
Rectangular and Circular Hollow Sections shall conform to AS/NZS 1183 - C450.0.
All Fasteners must conform to the Requirements of Roads and Maritime Services QA Specification BN1

HIGH STRENGTH STEEL BOLTS FOR STRUCTURAL ENGINEERING SHALL BE PROPERTY CLASS 8.8 TO AS/NZS 1232.
HIGH STRENGTH STEEL NUTS FOR STRUCTURAL BOLTING SHALL BE PROPERTY CLASS 8 TO AS/NZS 1252.

BOLTING CATEGORY FOR HIGH STRENGTH STEEL BOLTS SHALL BE 8.85 IN ACCORDANCE WITH AS 1550.8.

STEEL WASHERS LARGE SERIES SHALL CONFORM TO AS 1231-7, PRODUCT GRADE A.
All Steel Components shall be hot dip galvanized after Fabrication in accordance with Roads and Maritime Services Specification B201.
Bolts, nuts and Washers shall be hot dip galvanized in accordance with as 1214.
All welding shall be sp in accordance with AS/NZS 1554.1
All welding shall conform to AS/NZS 1554.1 with additional requirements as given in Roads and Maritime Services specification B201.
Welding Symbols comply with as 1550.3
Reinforcement not shown. The size and spacing of reinforcement must be determined by the designer

DENOTES NOMINAL VALUE.

The Grocut used to construct Mortar Pads and Fill Formed recesses shall be 2/Ø30 x 34 Long
Minimum Compressive Strength of Grocut shall be 40MPa
Grocutting shall be carried out to ensure that the formed recesses are completely filled and that there are no voids under the base plates.
Side faces ofGrocut pads shall be vertical and finish with edges of base plates.
The formingwork for the Grocut pads shall remain in place for a minimum of 3 days and curing compounds shall be applied to the sides of the Grocut pads after the removal of formwork.
The underside of the base plates and side faces of slotted holes shall be painted with two part Surface tolerant Epoxy Paint with a minimum dry film thickness of 150μm.
The Slope of the concrete and steel post external face is to be determined according to urban design requirements, but not exceed 1 in 10 (5.7°).

Transport Roads and Maritime Services
APPROVED FOR USE

TRAFFIC DRAWINGS
REGULAR PERFORMANCE LEVEL BARRIER
STANDARD SHAPES

DIRECTOR BRIDGES AND STRUCTURES
APPROVED FOR USE

standardbridgedrawings@rms.nsw.gov.au
EDMS No
DS2018/001767
DATE 21.12.2018
ISSUE DEC 2018
STATUS ISSUED
ISSUE B0061
ELEVATION

PLAN

BARRIER TYPE RAO

SIZE 24 LARGE SERIES WASHERS MAY BE USED INSTEAD OF PLATE WASHERS

DETAIL A

END POST ASSEMBLY

GENERAL NOTES

1. DENOTES THE MINIMUM DIMENSION BASED ON A 1 IN 10 SLOPE OF THE OUTER FACE OF THE PARAPET
2. DENOTES BARRIER LENGTH AND FOOTING TO BE DETERMINED BY THE DESIGNER IN ACCORDANCE WITH AS 5100.
3. FOR OTHER GENERAL NOTES RELATING TO THIS SHEET, SEE SHEET NO B0505.
THE LONGITUDINAL SEAM IN RHS MEMBERS SHALL BE ON THE UNDERSIDE OF THE RAILS.
CONNECTORS TO BE TRIAL FITTED BEFORE GALVANIZING TO ENSURE LOOSE FIT.
SEAM WELD INSIDE RHS TO BE GROUND OFF FOR 250mm MINIMUM FROM END OF RAIL.
SHALL BE UNFILLED, NOT LUBRICATED AND NOT DIMPLED.
PTFE SPACER SHALL BE 100% VIRGIN POLYTETRAFLUOROETHYLENE CONFORMING TO ISO 13000-1 GRADE 1 AND CURVED BRIDGE.
DENOTES DIMENSION TO BE VERIFIED BY THE DESIGNER WHEN STRAIGHT RAILING PANELS ARE USED ON A CURVED BRIDGE.
RAILINGS AND CONNECTORS SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
WELDING SYMBOLS COMPLY WITH AS 1101.3.
MARITIME SERVICES SPECIFICATION B201.
ALL WELDING SHALL CONFORM TO AS/NZS 1554.1 WITH ADDITIONAL REQUIREMENTS AS GIVEN IN ROADS AND MARITIME SERVICES QA SPECIFICATION B240.
STEEL PLATE SHALL CONFORM TO AS/NZS 3678-250.
RECTANGULAR HOLLOW SECTIONS SHALL CONFORM TO AS/NZS 1163-C450LO.
HIGH STRENGTH STEEL NUTS FOR STRUCTURAL BOLTING SHALL BE PROPERTY CLASS 8 TO AS/NZS 1252.
THE WELD CATEGORY SHALL BE SP IN ACCORDANCE WITH AS/NZS 1554.1.
ALL FASTENERS MUST CONFORM TO THE REQUIREMENTS OF ROADS AND MARITIME SERVICES TRAFFIC BARRIERS.
STANDARD DRAWING No
EDMS No
DATE
APPROVED FOR USE
STANDARD DRAWING
ISSUE DATE
REVISION ISSUE
STATUS
COPYRIGHT ROADS AND MARITIME SERVICES 2018
STANDARD DRAWINGS@RMS.NSW.GOV.AU
BARRIER TYPE MAO

150 x 20 PLATE x 315 CHAMFERED
1mm TO MATCH GRADE ON RAIL

GROUT PAD BENEATH

FOR INTERMEDIATE POST ASSEMBLY
DETAILS, SEE ROADS AND MARITIME SERVICES DRAWING No B0506

END POST ASSEMBLY
WITH 20 NOM THICK
GROUT PAD BENEATH

FOR INTERMEDIATE POST ASSEMBLY
DETAILS, SEE ROADS AND MARITIME SERVICES DRAWING No B0506

1 IN 20

ROUND TO MATCH RAIL

END PLATE SHALL BE TAPERED DOWN AND BACK
TO ALIGN WITH VERTICAL END PLATE IN END POST

BOTTOM RAIL SHALL BE TAPERED BACK TO
ALIGN WITH VERTICAL END PLATE IN END POST

DETAIL A

END POST ASSEMBLY

FOR EXPANSION JOINT DETAILS
SEE ROADS AND MARITIME SERVICES DRAWING No B0506

SCALE

GENERAL NOTES

DENOTES THE MINIMUM DIMENSION BASED ON A 1 IN 10 SLOPE OF THE OUTER FACE OF THE PARAPET

DENOTES BARRIER LENGTH AND FOOTING TO BE DETERMINED BY THE DESIGNER IN ACCORDANCE WITH AS 5100.

FOR OTHER GENERAL NOTES RELATING TO THIS SHEET, SEE SHEET No B0505.
GENERAL NOTES

DENOTES THE MINIMUM DIMENSION BASED ON A 1 IN 10 SLOPE OF THE OUTER FACE OF THE PARAPET.

DENOTES BARRIER LENGTH AND FOOTING TO BE DETERMINED BY THE DESIGNER IN ACCORDANCE WITH AS 5100.

FOR OTHER GENERAL NOTES RELATING TO THIS SHEET, SEE SHEET NO B0505.

END POST ASSEMBLY

DETAIL A

END PLATE SHALL BE ROUNDED TO MATCH RAIL

RAY SHALL BE TAPERED BACK TO ALIGN WITH VERTICAL END PLATE IN END POST

PLAN

250 x 25 PLATE x 270

GENERAL NOTES

SCALE

DENOTES THE MINIMUM DIMENSION BASED ON A 1 IN 10 SLOPE OF THE OUTER FACE OF THE PARAPET.

DENOTES BARRIER LENGTH AND FOOTING TO BE DETERMINED BY THE DESIGNER IN ACCORDANCE WITH AS 5100.

FOR OTHER GENERAL NOTES RELATING TO THIS SHEET, SEE SHEET NO B0505.

END PLATE SHALL BE ROUNDED TO MATCH RAIL

RAY SHALL BE TAPERED BACK TO ALIGN WITH VERTICAL END PLATE IN END POST

PLAN

250 x 25 PLATE x 270
GENERAL NOTES

- The longitudinal seam in RHS members shall be on the underside of the rails.
- Connectors to be trial fitted before galvanizing to ensure loose fit.
- Seam weld inside RHS to be ground off for 250mm minimum from end of rail.
- ISO 13000-1 Grade 1 and shall be unfilled, not lubricated and not dimpled.
- PTFE spacer shall be 100% virgin polytetrafluoroethylene conforming to ISO 13000-1 Grade 1.
- Panels are used on curved bridge.
- Denotes dimension to be verified by the designer when straight railing.
- Denotes dimension to be verified by the designer when used on curved bridge.
- Railings and connectors shall be hot-dip galvanized after fabrication.
- Welding symbols comply with AS 1101.3.
- All welding shall conform to AS/NZS 1554.1 with additional requirements.
- The weld category shall be SP in accordance with AS/NZS 1554.1.
- In accordance with AS 5100.6.
- Bolting category for high strength steel cup head bolts shall be 8.8/S.
- High strength steel bolts.
- High strength steel cup head bolts shall be property class 8.8 with a square collar on bolt.
- And shall be marked during manufacture to designate them as per AS/NZS 1390.
- Dimensions and shape for cup head bolts shall be in accordance with AS/NZS 1252.
- Steel plates shall conform to AS/NZS 3678-250.
- Rectangular hollow sections shall conform to AS/NZS 1163-C450LO.
- All fasteners must conform to the requirements of Roads and Maritime Services QA specification BDS.
- The PTFE spacer shall be 100% virgin PTFE and shall be ground off for 250mm minimum from end of rail.
- Connectors to be trail fitted before galvanizing to ensure loose fit. The longitudinal seam in RHS members shall be on the underside of the rails.
- Scale 1:50 or as shown.
- © Commonwealth of Australia and NSW Government.
FERRULES:
0.449 x 190 LONG STEEL BAR
GRADE 250R TO AS/NZS 3479.1
WITH Ø24 HOLE TAPPED TO SUIT
GALVANIZED BOLT - TYP

ANCHOR TO BE SET FLUSH WITH RECESSED FACE
OF CAST-IN ANCHOR

RECESSED FACE
DECK LEVEL

RECESS REFERENCE LINE

GENERAL NOTES

SCALE

20

50

100

150

200

250

300

350

400

450

500

OR AS SHOWN.

STEEL PLATE SHALL CONFORM TO AS/NZS 3678-250.

REINFORCING BAR SHALL CONFORM TO AS/NZS 4671-D500N.

WELD CATEGORY SHALL BE GP IN ACCORDANCE WITH AS/NZS 1554 PART 1.

ALL WELDING SHALL CONFORM TO THE REQUIREMENTS OF AS/NZS 1554 PART 1

WITH ADDITIONAL REQUIREMENTS AS GIVEN IN ROADS AND MARITIME SERVICES SPECIFICATION B204.

WELDING SYMBOLS CONFORM TO AS 1101 PART 3.

FERRULES ONLY SHALL BE HOT-DIP GALVANIZED.

AFTER ASSEMBLY, DAMAGED GALVANIZED SURFACES SHALL BE RENOVATED WITH TWO PACK ORGANIC
ZINC-RICH PRIMER.

º DENOTES TYPICAL DIMENSION FOR ALL CASES. WHERE STRUCTURES ARE CONSTRUCTED ON A GRADE, THIS
DIMENSION SHALL BE MEASURED ALONG THE REFERENCE LINE AS SHOWN IN VIEW 2.

ANCHOR ASSEMBLY

FIXING DETAILS