



- NOTES:**
- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
  - BARRIERS TO BE IN ACCORDANCE WITH AS/NZS 3845.1-2015 AND AS 5100.1-2017 AND AS 4671-2001.
  - REFER TO PROJECT DRAWINGS FOR LENGTH, POSITION, OFFSET AND TERMINALS FOR RAILS
  - REFER TO CS3203, CS3202, MANUFACTURES DRAWINGS AND SPECIFICATION FOR SETOUT AND INSTALLATION OF CRASH TESTED GUARDRAIL IN ACCORDANCE WITH AS 3845.1-2015.
  - PROVIDE A FLARED GATING TERMINAL WHERE GUARDRAIL LIES WITHIN THE SHY LINE OFFSET AREA. APPLY FLARE RATE AS PER AUSTRROADS GUIDE TO ROAD DESIGN PART 6.
  - IN LINE KINETIC ENERGY ABSORBING TERMINALS MAY BE USED WHERE THE GUARDRAIL IS POSITIONED OUTSIDE OF THE SHY LINE OFFSET AREA OR WHERE THERE IS INSUFFICIENT SPACE FOR A FLARED END GATING TERMINAL.
  - OBTAIN SUPERINTENDENT'S APPROVAL FOR ACCEPTANCE OF ALTERNATIVE TO FLARED END TERMINAL.
  - GATING TERMINALS INCLUDE:
    - MODIFIED ECCENTRIC LOADER TERMINAL (MELT)
    - KINETIC ENERGY ABSORBING TERMINALS FOR SPEEDS >70KM/HR
  - GUARDRAIL DELINEATORS SHALL BE PROVIDED WITH RED AND WHITE "CLASS 1A" RETROREFLECTIVE SHEETING OR AS DOUBLE SIDED REFLECTORS IN ACCORDANCE WITH AS/NZS 1906.2-2007. RETROREFLECTIVE AREA SHALL BE 100cm<sup>2</sup> AND NO LESS THAN 60mm WIDE. DELINEATORS ARE TO BE BOLTED TO THE BLOCK OUT PIECES OR TO THE POSTS WHERE BLOCK OUTS ARE NOT USED. THE TOP OF THE DELINEATOR SHALL BE 220mm ABOVE THE TOP OF THE GUARDRAIL SO THAT THE APPROACHING DRIVER ALWAYS SEES RED ON HIS LEFT AND WHITE ON HIS RIGHT HAND SIDE. PLACE AT EACH END AND AT 12m CENTRES.
  - ALL STEELWORK SHALL BE HOT DIP GALVANISED AFTER FABRICATION OF ALL WELDED COMPONENTS TO AS 4680-2006.
  - ALL CONCRETE SHALL BE N25 IN ACCORDANCE WITH AS 3600-2009.
  - DETAILS NOT SPECIFICALLY SHOWN ON THIS DRAWING SHALL BE TO AS 3845.1-2015 UNLESS NOTED OTHERWISE.

- GUARD-RAIL ALIGNMENT:**
- OBTAIN THE SUPERINTENDENT'S APPROVAL FOR POST SETOUT DIMENSIONS AND ALIGNMENT.
  - ERECT W-BEAM RAIL AND POSTS AND THEN OBTAIN SUPERINTENDENT'S APPROVAL OF THE RAIL ALIGNMENT PRIOR TO SETTING POSTS IN POSITION.
  - OFFSET NOMINALLY 1250mm, HOWEVER THE OFFSET MAY VARY DEPENDENT ON MANUFACTURES APPLIED FLARE RATE. THE DISTANCE IS FROM THE OUTSIDE EDGE OF SHOULDER TO THE BULLNOISE, NOT FROM THE EDGE OF THE TRAFFIC LANE.
- POSTS:**
- POSTS MAY BE DRIVEN INTO THE GROUND PROVIDED THIS CAN BE ACHIEVED WITHOUT DAMAGE TO THE POST.
  - POSTS THAT ARE OUT OF VERTICAL BY MORE THAN 20mm OVER THE PROJECTING LENGTH, OR MORE THAN 25mm OUT OF POSITION, SHALL BE REMOVED AND RE-INSTALLED IN 450mm DIAMETRE HOLES AS PER THE DETAIL ON THIS SHEET.
  - PREBORE 450mm DIAMETRE HOLES FOR POSTS THAT ARE TO BE INSTALLED THROUGH (A) CONCRETE SLAB OR MARGIN, (B) VERY STIFF OR HARD CLAY, (C) LOOSE SAND, (D) BOUND (STABILISED) PAVEMENT, OR (E) DEEP LIFT ASPHALT PAVEMENT, CENTRALISE THE POSTS IN THE HOLE AND BACKFILL USING CLEAN, WELL-GRADED, NON-CEMENTITIOUS, GRANULAR MATERIAL.
  - COMPACT THE BACKFILL SUCH THAT (A) IT DOES NOT SETTLE DURING WET- SEASON SERVICE AND (B) THE POST DOES NOT MOVE MORE THAN 3mm AT GROUND LEVEL UNDER THE ACTION OF A 1kn LOAD APPLIED 200mm FROM THE TOP OF THE POST IN ANY DIRECTION.
  - THE COMPACTED HOLE SHALL CONFORM TO THE DETAIL ON THIS SHEET ON FLOODWAYS OR WITHIN CONCRETE MARGINS, BACKFILL THE TOP 50mm OF THE HOLE WITH COLD-MIX ASPHALT AS INDICATED ON THE DETAIL.

- SEALING:**
- THE WIDTH OF SEAL SHALL EXTEND BEHIND THE GUARD RAIL AS SHOWN AT SECTION 1 AND 3, FOR THE FULL LENGTH AND ENCOMPASS THE BULL NOSE.

**WARNING**

BEWARE OF UNDERGROUND SERVICES.  
THE LOCATIONS OF UNDERGROUND SERVICES ARE APPROXIMATE ONLY AND THEIR EXACT POSITION SHOULD BE PROVEN ON SITE. NO GUARANTEE IS GIVEN THAT ALL EXISTING SERVICES ARE SHOWN.

No.	DESCRIPTION	DATE	NAME	DEPT/COMPANY
1	DETAILS AND NOTES UPDATED	DEC 2017	J.LEESON	EES/DIPL
0	ISSUED AS A STANDARD DRAWING	SEPT 2017	J.LEESON	EES/DIPL
AMENDMENTS				

DRAWN J.LEESON	CHECKED S.HATZI
DATE JULY 2017	DATE JULY 2017
DESIGNED	CHECKED
DATE	DATE
DESIGN LEADER S.HATZI	DESIGN DIRECTOR S.JACKSON
DATE 1/09/2017	DATE 1/09/2017



STANDARD DRAWINGS SAFETY BARRIERS TYPICAL APPROACH GUARDRAILS WITH FLARED TERMINALS (FOR BRIDGES CONCRETE BARRIER CONNECTIONS)				
FILE No.	ASSET No.	SHEET No.	DRAWING No.	AMEND.
-	-	1 OF 1	CS3201	1
				SHEET SIZE A1