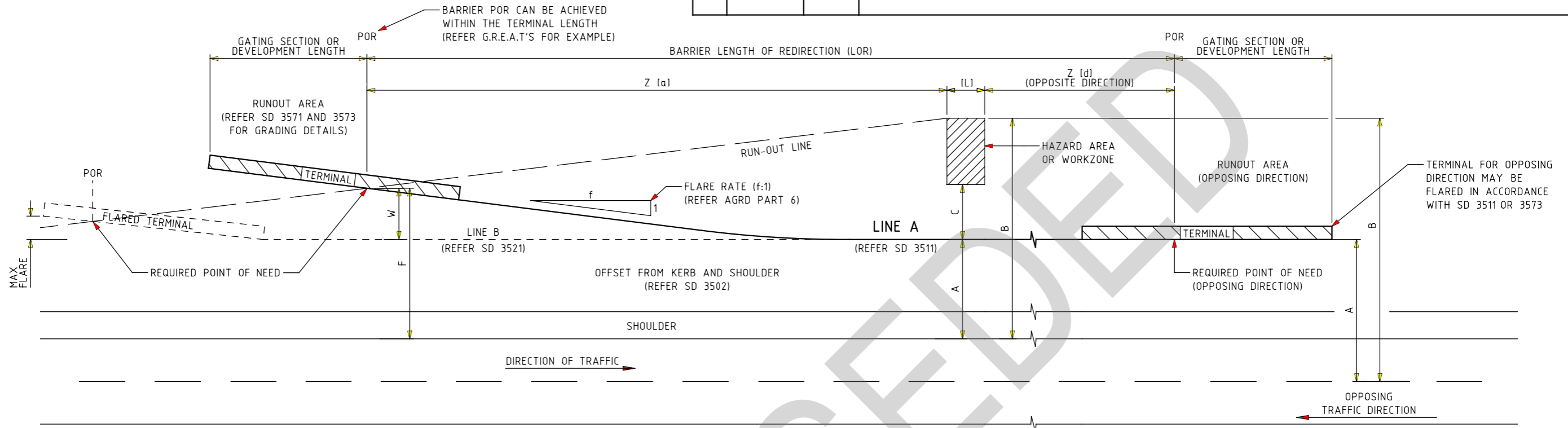


ISSUE	APPROVED BY	DATE	AMENDMENT



TERMINOLOGY:

- REQUIRED POINT OF NEED (PON) IS CALCULATED USING THE RUN-OUT LENGTH METHOD SPECIFIED IN AGRD PART 6. IT DERIVES THE CLOSEST POINT TO A HAZARD REQUIRED TO SHIELD 85% OF ERRANT VEHICLES FROM IMPACTING THAT HAZARD. THE DISTANCE BETWEEN A LEADING PON AND OPPOSING TRAFFIC PON IS THE MINIMUM LENGTH REQUIRED FOR A REDIRECTIVE BARRIER.
- POINT OF REDIRECTION (POR) IS THE POINT AT WHICH A BARRIER BECOMES REDIRECTIVE AND CONTAINS A CRASH TESTED VEHICLE. THE LOCATION OF THE BARRIER POR IS DIFFERENT FOR EACH BARRIER TERMINAL AND MAY BE ACHIEVED WITHIN THE LENGTH OF TERMINAL (REFER SD 3545). MATCHING THE BARRIER POR WITH THE REQUIRED POINT OF NEED ENSURES THAT 85% OF ERRANT VEHICLES ARE ADEQUATELY SHIELDED FROM IMPACTING THE HAZARD.
- BARRIER LENGTH OF REDIRECTION (LOR) IS THE LENGTH OF BARRIER DESIGNED TO CONTAIN AND REDIRECT AN ERRANT VEHICLE UP TO THE ACCEPTED TEST LEVEL. E.G. TEST LEVEL 3 IS A 2,000KG PICKUP TRUCK IMPACTING AT 100km/h AND 25 DEGREES. THE BARRIER LOR SHALL BE BETWEEN TWO REQUIRED POINTS OF NEED TO SHIELD 85% OF VEHICLES.
- THE GATING SECTION IS THE LENGTH OF TERMINAL DESIGNED TO ALLOW AN IMPACTING VEHICLE TO PASS THROUGH AND BEHIND THE BARRIER. A RUNOUT AREA SHOULD BE PROVIDED BEHIND AND BEYOND THE GATING SECTION FOR ERRANT VEHICLES. REFER SD 3545.
- WHERE THE TERMINAL IS UNANCHORED, THE GATING SECTION MAY BE REFERRED TO AS THE DEVELOPMENT LENGTH. DEVELOPMENT LENGTH IS THE LENGTH, ADVANCED OF THE POINT OF REDIRECTION, NECESSARY TO PROVIDE SUFFICIENT MASS FOR THE BARRIER TO PERFORM IN ACCORDANCE WITH ITS DESIGN PARAMETERS.
- DYNAMIC DEFLECTION IS THE DISTANCE THE FACE OF BARRIER WILL LATERALLY MOVE WHEN IMPACTED BY A CRASH TESTED VEHICLE DURING CRASH TEST CONDITIONS. DEFLECTION DATA SHALL BE OBTAINED FROM VICROADS STANDARD DRAWINGS, DESIGN NOTES AND SPECIFIC PRODUCT INFORMATION. SEE ALSO VEHICLE ROLL ALLOWANCE.
- VEHICLE ROLL ALLOWANCE IS THE AREA MEASURED ABOVE AND BEHIND THE FACE OF BARRIER WHERE AN IMPACTING VEHICLE OR MAJOR PART OF THE SYSTEM MAY EXTEND DURING AN IMPACT. REFER AGRD PART 6, FIGURE A7 OF APPENDIX A.
- WORKING WIDTH IS THE SUM OF THE DYNAMIC DEFLECTION AND VEHICLE ROLL ALLOWANCE (OR SYSTEM WIDTH IF IT IS LARGER THAN THE VEHICLE ROLL ALLOWANCE). SEE NOTE 3.
- FLARE RATE IS THE RATIO OF THE LENGTH OF THE FLARED SECTION OF BARRIER TO THE BARRIER OFFSET (MEASURED PARALLEL TO THE ROAD). FLARE RATE SHALL BE IN ACCORDANCE WITH AGRD PART 6 OR AASHTO 2011.
- A HAZARD IS AN OBSTACLE OR FEATURE LOCATED ON THE ROADSIDE WHICH MAY RESULT IN A HIGHER ACCIDENT SEVERITY THAN INSTALLATION OF A BARRIER WHEN IMPACTED BY A VEHICLE. REFER AGRD PART 6, SECTION 4.3 - IDENTIFY HAZARDS.

SAFETY BARRIER SHORTHAND:

ALL SAFETY BARRIER DESIGNS SHALL HAVE AT LEAST MINIMUM BARRIER INFORMATION. SHORTHAND MAY BE USED.

LONGITUDINAL BARRIER:

- GF- GUARD FENCE (SD 3502, 3661)
- WRSB- WIRE ROPE SAFETY BARRIER (RDN 06-04)
- CONC- PERMANENT CONCRETE BARRIER (SD 3901)
- TEMP- TEMPORARY BARRIER (PRODUCT MANUAL)
- [A]- OFFSET TO TRAFFIC LANE (m)
- [B]- OFFSET TO BACK OF HAZARD (m)
- [C]- BARRIER CLEARANCE FROM HAZARD (m)
- [a]- BARRIER APPROACH LENGTH (m)
- [L]- LENGTH OF HAZARDS (m)
- [d]- BARRIER DEPARTURE LENGTH (m)
- [f]- FLARE RATE (f:1)
- [W]- FLARE OFFSET (m)

TERMINAL:

- G.R.E.A.T- GATING REDIRECTIVE ENERGY ABSORBING TERMINAL (SD 3545)
- FLARED.G.R.E.A.T- FLARED G.R.E.A.T (SEE ABOVE)
- T.T- TRAILING TERMINAL (SD 3544)
- S.T- STRAIGHT WRSB TERMINAL (SD 3573)
- FL.X- FLARED WRSB TERMINAL WITH Xm OFFSET. e.g FL.1 OR FL.2 (SD 3573)
- C.C- CRASH CUSHION (PRODUCT MANUAL)

MINIMUM EXAMPLE:

LINE B: FL.1.5 - WRSB [35a] [10L] [25d] [1*A] - S.T

RECOMMENDED EXAMPLE:

LINE A - GF
 A- 4m
 B- 7m
 C- 1m
 a- 35m (f - 12:1)
 L- 20m
 d- 0m
 A.Terminal - G.R.E.A.T
 D.Terminal - T.T

NOTES:

- BARRIER OFFSET "A" IS THE DISTANCE FROM THE TRAFFIC LANE TO THE FACE OF BARRIER. OFFSET REQUIREMENTS SHALL BE IN ACCORDANCE WITH VICROADS SUPPLEMENTS (VRS) TO AUSTRROADS GUIDE TO ROAD DESIGN (AGRD) PART 6 AND ROAD DESIGN NOTE (RDN) 06-02. BARRIER OFFSETS LESS THAN 3.0m REQUIRE RELEVANT AUTHORISATION. REFER VRS TO AGRD PART 6, SECTION V6.3.5.1.
- PROTECTED WIDTH "B" IS THE DISTANCE FROM THE TRAFFIC LANE TO THE OUTERMOST POINT OF THE HAZARD. IF THE HAZARD EXTENDS BEYOND THE CLEAR ZONE, THE PROTECTED WIDTH EQUALS THE CLEAR ZONE WIDTH. (REFER TO VRS TO AGRD PART 6, SECTION V4.2.2 FOR CLEAR ZONE WIDTHS).
- CLEARANCE "C" BETWEEN THE HAZARD AND THE FACE OF BARRIER SHALL BE AT LEAST EQUAL TO THE GREATER OF BARRIER 'WORKING WIDTH' OR 'DYNAMIC DEFLECTION'. REFER SPECIFIC PRODUCT MANUALS, DRAWINGS AND SPECIFICATIONS FOR BARRIER PERFORMANCE DATA.
- ON RECOVERABLE TERRAIN (REFER AGRD PART 6), THE BARRIER IS LOCATED "C" FROM THE HAZARD. WHERE ONLY PART OF THE TERRAIN IS RECOVERABLE, BETWEEN THE SHOULDER AND THE HAZARD, THE SAFETY BARRIER IS LOCATED AT THE LIMIT OF THE RECOVERABLE TERRAIN. REFER SD 3511 AND 3521.
- LENGTH "Z" IS MEASURED FROM THE REQUIRED POINT OF NEED TO HAZARD AND DOES NOT INCLUDE THE GATING SECTION OR DEVELOPMENT LENGTH PRIOR TO THE POINT OF REDIRECTION (SEE TERMINOLOGY 4). REFER SPECIFIC PRODUCT MANUALS, DRAWINGS AND SPECIFICATIONS FOR LOCATION OF BARRIER POINT OF REDIRECTION.
- "Z" VALUES SHALL BE ON BOTH SIDES OF THE HAZARD (Z(a) AND Z(b)) WHERE THE HAZARD IS WITHIN THE CLEAR ZONE FOR OPPOSING TRAFFIC.
- MINIMUM BARRIER LENGTH OF REDIRECTION (LOR) SHALL BE IN ACCORDANCE WITH SPECIFIC PRODUCT MANUALS, DRAWINGS & SPECIFICATION. COMMON BARRIER TYPES INCLUDE: GF- 30m, WRSB- 60m, CONC- DESIGN SPECIFIC AND TEMPORARY- PRODUCT SPECIFIC. (LOR > Z(a)+L+Z(d))
- RUNOUT AREA REQUIREMENTS IN ACCORDANCE WITH SD 3545, SD 3571 AND SD 3573 SHALL BE PROVIDED FOR ALL APPROACH TERMINALS.
- VEHICLE VAULTING CAUSED BY KERB AND CHANNEL SHALL BE CONSIDERED FOR ALL BARRIER DESIGNS TO ENSURE THE BARRIER WILL PERFORM AS REQUIRED. REFER SD 3502 FOR GUARD FENCE AND WRSB OFFSETS TO KERB OR SPECIFIC DOCUMENTATION FOR OTHER BARRIER TYPES.
- TRANSITION BETWEEN ACCEPTED BARRIER SYSTEMS SHALL BE IN ACCORDANCE WITH VICROADS STANDARD DRAWINGS AND SPECIFIC PRODUCT MANUALS, DRAWINGS AND SPECIFICATIONS.

REFERENCES AND NOTES:

- ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.

VICROADS SUPPLEMENTS TO AGRD
 AUSTRROADS GUIDE TO ROAD DESIGN (AGRD): PART 6
 RDN 06-02: USE OF WIRE ROPE SAFETY BARRIERS
 RDN 06-04: ACCEPTED SAFETY BARRIER PRODUCTS
 RDN 06-08: USE OF STEEL GUARD FENCE
 AASHTO 2011: ROADSIDE DESIGN GUIDE
 VICROADS STANDARD DRAWINGS: ROAD SAFETY BARRIERS

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ROAD SAFETY BARRIERS
 TERMINOLOGY, SHORTHAND AND GENERAL REQUIREMENTS FOR SAFETY BARRIERS

NOT TO SCALE	APPROVED D.CASSAR	SD NO. 18/5/14 SD 3500	ISSUE
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