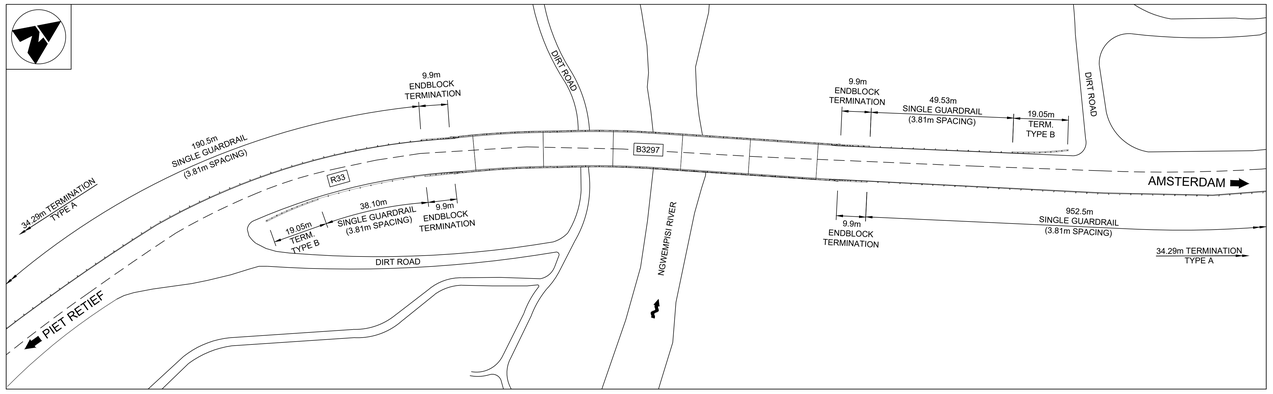
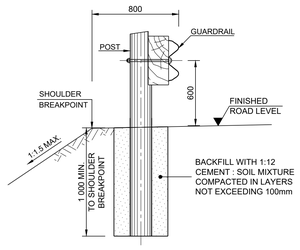
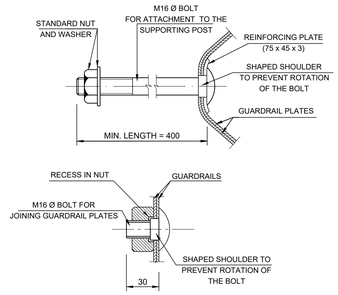


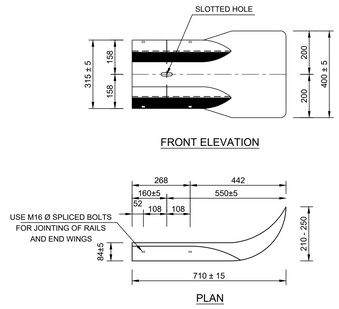
GUARDRAIL LAYOUT PLAN
SCALE 1:750



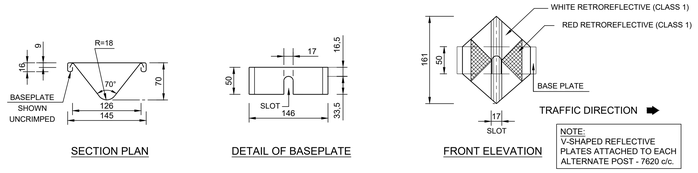
TYPICAL SECTION GUARDRAIL POSTS
SCALE 1:20



TYPICAL BOLTS
SCALE 1:2

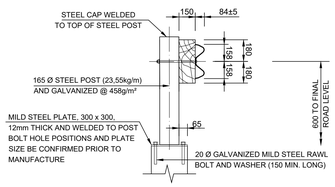


STANDARD FLARED END WING
SCALE 1:10



NOTE:
V-SHAPED REFLECTIVE PLATES ATTACHED TO EACH ALTERNATE POST - 7620 c/c.

DETAIL OF GUARDRAIL REFLECTIVE PLATES (REFLECTIVE PLATES - TYPE A)
SCALE 1:4



DETAIL OF STEEL GUARDRAIL POST
SCALE 1:20

GUARDRAIL SPECIFICATIONS

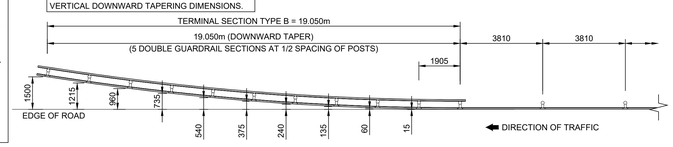
1. BOLT: HIGH TENSILE STEEL 16mmØ.
2. WASHERS: 3mm THICK
3. SPACER BLOCK: PINE OR GUM, PRESSURE IMPREGNATED IN ACCORDANCE WITH SANS 10005 WITH CREOSOTE WHICH COMPLIES WITH SANS 538 OR 539.
4. POSTS: 180mmØ MIN - 230mmØ MAX., SALIGNA (BLUEGUM), PRESSURE IMPREGNATED IN ACCORDANCE WITH SANS 10005 WITH CREOSOTE WHICH COMPLIES WITH SANS 538 OR SANS 539.
5. GALVANISING:
   GUARDRAILS: (SANS 121/ISO 1461): TYPE A1 ARTICLES.
   BOLTS AND WASHERS: (SANS 121/ISO 1461) TYPE C1 ARTICLES.
6. TIMBER POSTS: POSTS SHALL COMPLY WITH THE REQUIREMENTS OF SANS 457 AND SHALL CARRY THE SANS MARK.
7. REFLECTIVE PLATES: THE OUTER SURFACES SHALL BE COATED WITH ENGINEERING GRADE RETRO-REFLECTIVE MATERIAL WHICH COMPLIES WITH THE PROVISIONS CKS 191 IN THE COLOURS SHOWN ON DRAWING TD-R-GR-002.

NOTES ON GUARDRAIL ERECTION DETAILS:

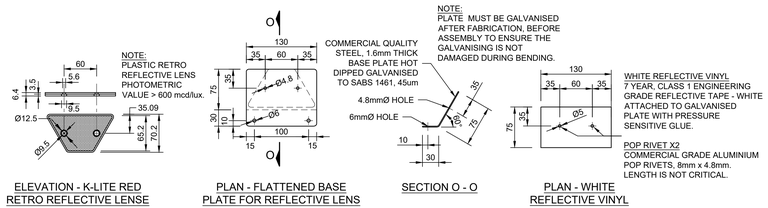
1. THE HOLES FOR TIMBER POSTS SHALL BE OF SUFFICIENT SIZE TO PERMIT PROPER SETTING OF THE POSTS AND TO ALLOW SUFFICIENT ROOM FOR BACKFILLING.
2. AT LEAST 1,0m OF POST SHALL BE EMBEDDED IN THE GROUND.
3. HOLES FOR TIMBER POSTS SHALL BE SPACED TO SUIT THE STANDARD LENGTH OF GUARDRAIL SUPPLIED.
4. HOLES SHALL BE BACKFILLED (12:1) SOIL:CEMENT MIXTURE AT OPTIMUM MOISTURE CONTENT IN COMPACTED LAYERS NOT EXCEEDING 100mm.
5. WHERE JOINTED, THE END OF THE GUARDRAIL WHICH OVERLAPS ON THE SIDE OF THE TRAFFIC SHALL POINT IN THE DIRECTION OF THE TRAFFIC MOVEMENT.

NOTE:
LENGTH OF GUARDRAIL = 4 130mm.
NORMAL SPACING OF POSTS = 3 810mm.

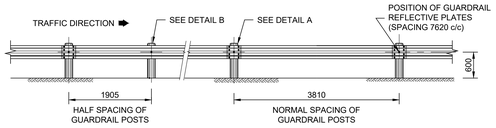
REFER TO ELEVATION OF GUARDRAIL TERMINATION TYPE A - AT APPROACHES FOR THE VERTICAL DOWNWARD TAPERING DIMENSIONS.



PLAN OF GUARDRAIL TERMINATION TYPE B - AT DEPARTURES
SCALE 1:100



DETAIL OF N1 PARAPET REFLECTIVE PLATES (REFLECTIVE PLATES - TYPE B)
SCALE 1:4

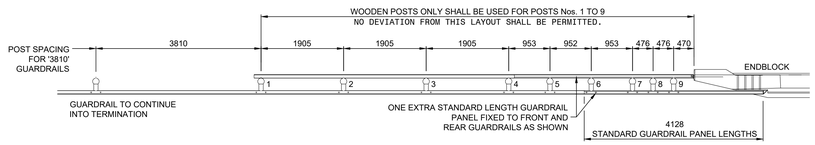


SPACING OF POSTS AND POSITION OF REFLECTIVE PLATES
SCALE 1:50

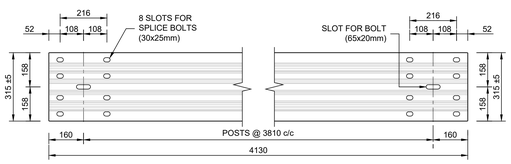
GUARDRAIL WARRANT:

1. WHERE THE ROAD IS IN FILL > 3.0m.
2. WHERE THERE IS PERMANENT WATER ADJACENT TO THE ROADWAY.
3. ON ALL BRIDGE APPROACHES.
4. AT OBSTRUCTIONS 1.0m AWAY FROM THE SHOULDER BREAKPOINT.
5. AT ANY DANGER POINT WHERE THE OFF-SHOULDER HAZARD IS GREATER THAN THE HAZARD OF THE GUARDRAIL.

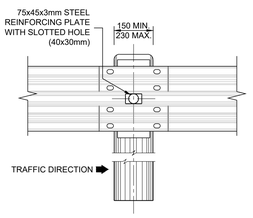
THE ABOVE CRITERIA ARE TO BE APPLIED WITH DISCRETION AND THE POSITION OF ALL GUARDRAILS MUST BE CONFIRMED WITH THE ENGINEER PRIOR TO THE ERECTION THEREOF.



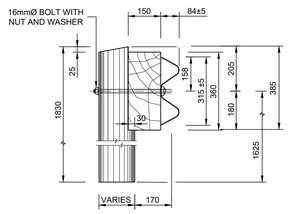
DETAILED PLAN OF GUARDRAIL TO ENDBLOCK CONNECTION
SCALE 1:50



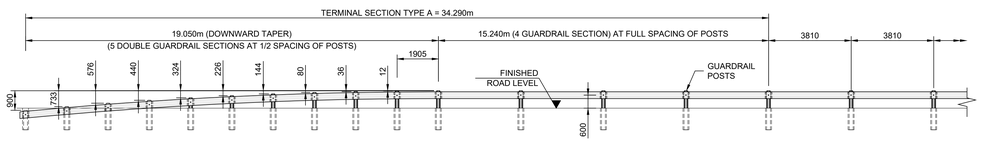
TYPICAL GUARDRAIL SECTION
SCALE 1:10



DETAIL A : FRONT ELEVATION NORMAL SPACING OF POSTS
SCALE 1:10

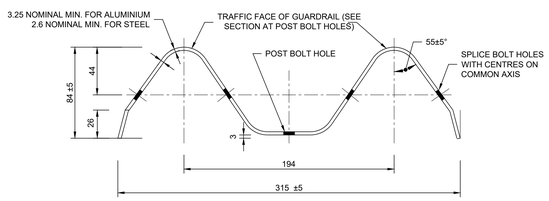


ELEVATION OF GUARDRAIL
SCALE 1:10

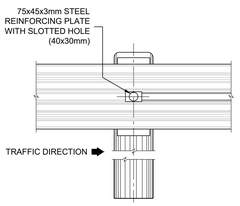


ELEVATION OF GUARDRAIL TERMINATION TYPE A - AT APPROACHES
SCALE 1:100

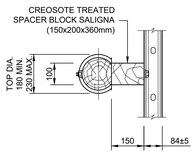
NOTE:
1. GUARDRAILS SHALL ONLY BE PLACED WHERE REQUIRED BY THE ENGINEER.
2. ALL GUARDRAILS MUST BE GALVANISED AS SPECIFIED (NOT PAINTED).



SECTION THROUGH GUARDRAIL
SCALE 1:2

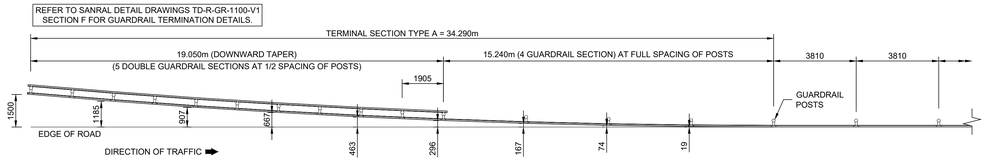


DETAIL B : FRONT ELEVATION HALF SPACING OF POSTS
SCALE 1:10



PLAN OF GUARDRAIL
SCALE 1:10

REFER TO SANRAL DETAIL DRAWINGS TD-R-GR-1100-V1 SECTION F FOR GUARDRAIL TERMINATION DETAILS.



PLAN OF GUARDRAIL TERMINATION TYPE A - AT APPROACHES
SCALE 1:100

No.	DATE	REVISION	CONSULT. ENG.
V2		SCANNED ORIGINAL WITH SIGNATURE	KG MALCOMSON
V1	12/11/2020	ORIGINAL VERSION	KG MALCOMSON

CONSTRUCTION RECORD (AS-BUILT)
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Date :

SNA CIVIL AND STRUCTURAL ENGINEERS (Pty) LTD
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CHECKED BY	
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Prof. Reg. No.	880542
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NAME	M WATTS

CONSULTANT APPROVAL
Name : KG MALCOMSON
Prof. Reg. No. : 880542
Date : 02 / 12 / 2019

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BUILDING SOUTH AFRICA THROUGH BETTER ROADS

NORTHERN REGION
38 Ida Street
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for the SA NATIONAL ROADS AGENCY SOC LTD.
Date:

MSBBR: REPAIRS TO BRIDGE PARAPETS; R40 NELSPRUIT B0064 AND R33 PIET RETIEF B3297

EMERGENCY REPAIR FOR BRIDGE B3297 ON R033/06N AT km 27.5

MISCELLANEOUS DETAILS

SCALE : AS SHOWN | SHEET 07 OF 10

PROJECT NUMBER	NRA X.002-063-2018/01-C05	
DRAWING LOCATION DATA	START	END
ROUTE	R033	R033
SECTION	06N	06N
DRAWING km DISTANCE	27.5	27.5
DRAWING TYPE	STRUCTURES-BRIDGES	
BRIDGE/STRUCTURE No.	B3297	
CONSULTANT DRAWING No.	TP1916-2/B3297/07	VER
SANRAL DOCUMENT #	18972147	V2

DRAWING No :- TP1916-2/B3297/07