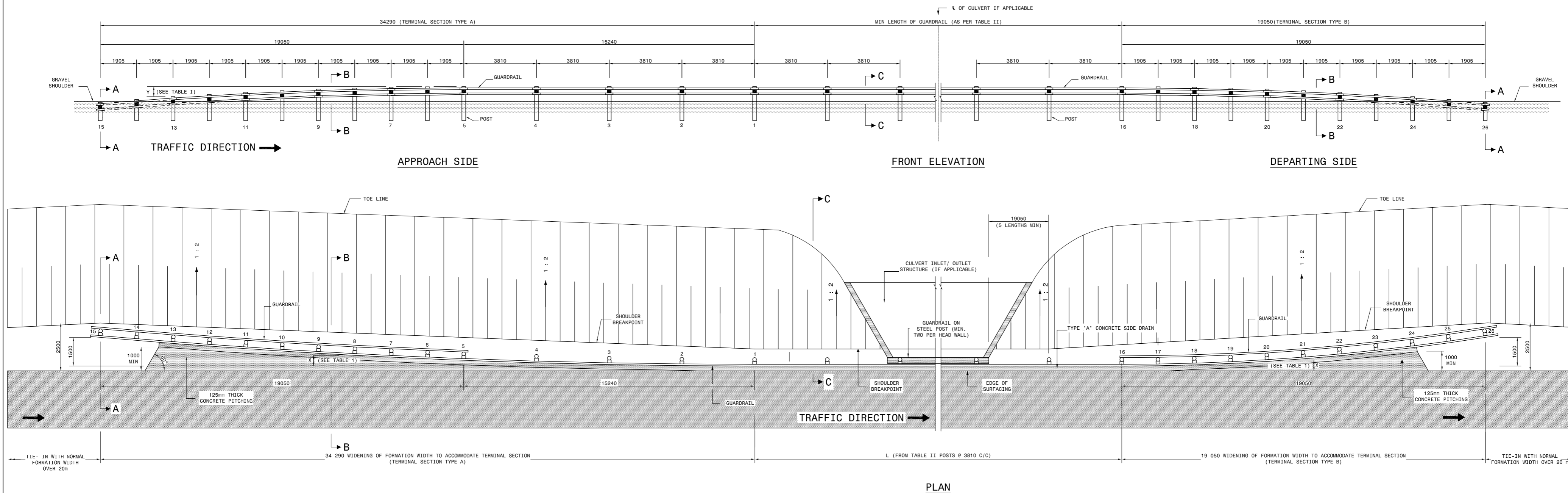
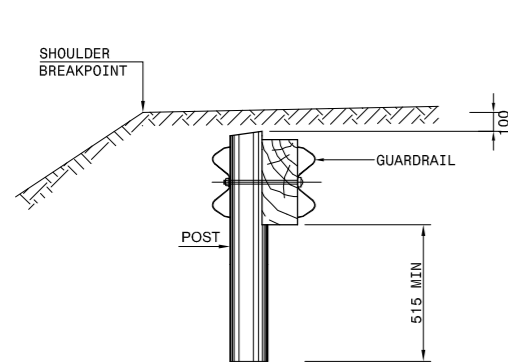


GUARDRAIL PLACING DETAILS

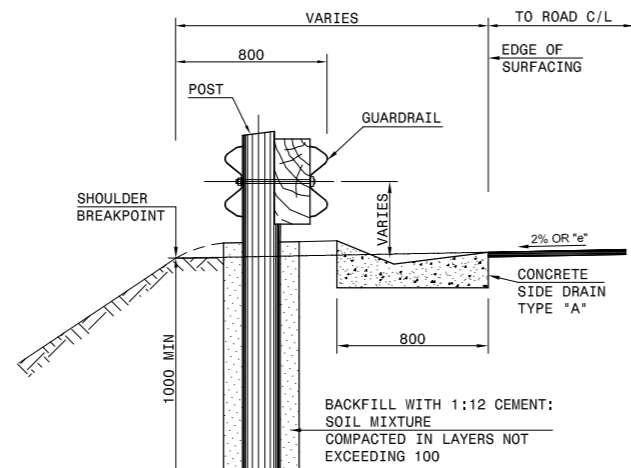


DETAIL OF TERMINAL SECTIONS AT APPROACH AND DEPARTING SIDES

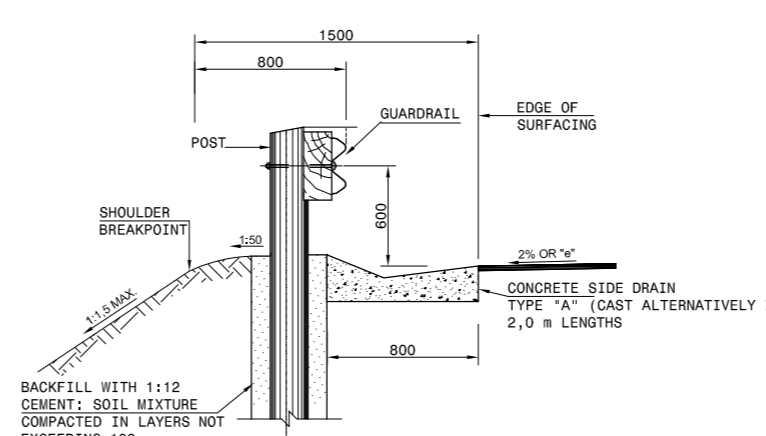
SCALE 1 : 75



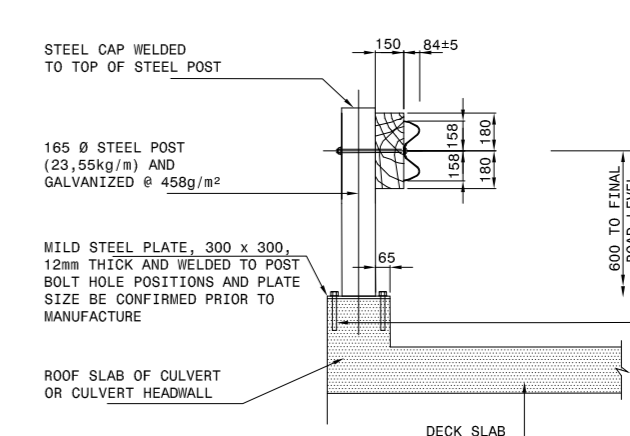
SECTION A - A
SCALE 1:20



SECTION B - B
SCALE 1:20



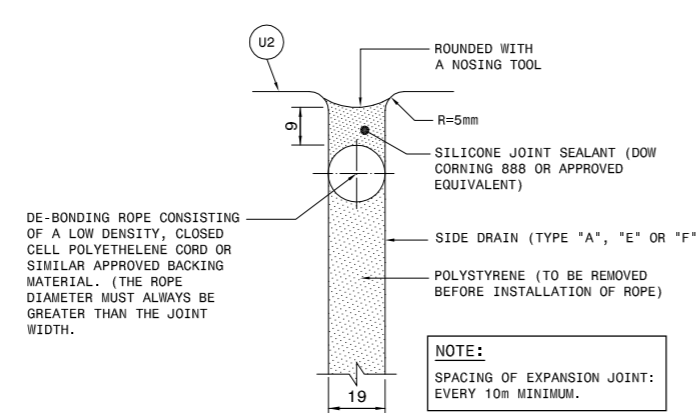
SECTION C - C
WITH CONCRETE SIDE DRAIN
SCALE 1:20



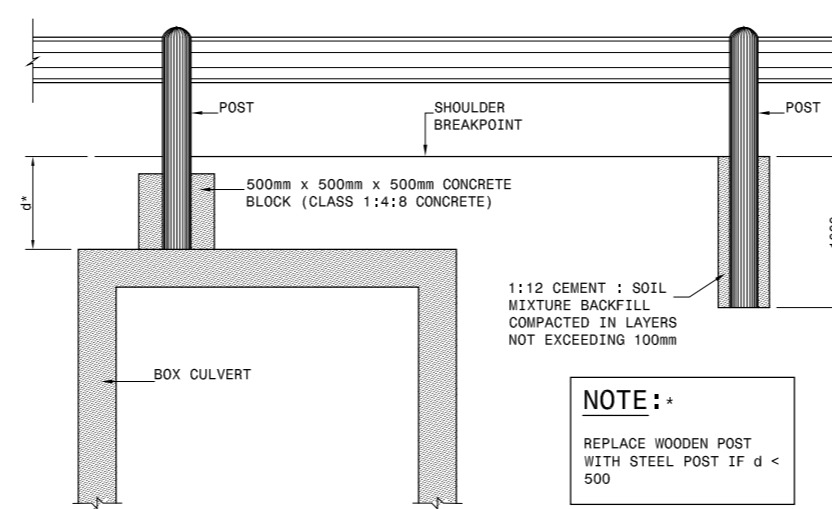
DETAIL OF STEEL GUARDRAIL POST
SCALE 1:20

POST No.	SETTING OUT POSITIONS OF GUARDRAIL POSTS	
	HORIZONTAL OFF-SET X - (mm)	VERTICAL OFF-SET Y - (mm)
1	0	0
2	19	0
3	74	0
4	167	0
5	296	0
6	375	-
7	463	33
8	560	-
9	667	133
10	782	-
11	907	229
12	1042	-
13	1185	531
14	1338	-
15	1500	830
16	0	0
17	15	-
18	60	33
19	135	-
20	240	133
21	375	-
22	540	299
23	735	-
24	960	531
25	1215	-
26	1500	830

DESIGN SPEED km/h	MIN. LENGTH OF GUARDRAIL REQUIRED (EXCLUDING TERMINAL SECTIONS)	
	MIN. LENGTH (m)	MIN. LENGTH (m)
60	12 LENGTHS (45,72)	12
70	14 LENGTHS (51,34)	14
80	16 LENGTHS (60,96)	16
90	20 LENGTHS (76,20)	20
100	23 LENGTHS (87,63)	23
110	27 LENGTHS (102,87)	27
120	29 LENGTHS (110,49)	29



DETAIL OF EXPANSION JOINT
N.T.S.



DETAIL 1
N.T.S.

- ### GUARDRAIL WARRANT
- WHERE THE FILL IS HIGHER THAN 3,0m FOR SURFACED ROADS, AND 6,0m FOR GRAVEL ROADS.
 - WHERE WATER NEXT TO THE ROAD FORMATION IS DEEPER THAN 1,5m.
 - AT ALL BRIDGES WITH BALUSTRADES.
 - ON THE OUTSIDE OF CURVES WITH RADI LESS THAN 200m AND ONLY WHEN THE ROAD IS IN FILL.
 - WHERE OBSTRUCTIONS ARE LESS THAN 1,0m FROM THE SHOULDER BREAKPOINT.
 - WHERE AN OBSTRUCTION APPEARS TO BE MORE DANGEROUS THAN A GUARDRAIL WOULD BE.
 - THESE RULES ARE TO BE APPLIED WITH DISCRETION AND THE POSITION OF ALL GUARDRAILS MUST BE CONFIRMED ON SITE BY THE ENGINEER PRIOR TO THE ERECTION THEREOF.

- ### ERECTION DETAILS
- THE HOLES FOR TIMBER POSTS SHALL BE OF SUFFICIENT SIZE TO PERMIT PROPER SETTING OF THE POSTS AND TO ALLOW SUFFICIENT ROOM FOR BACKFILLING THE HOLE.
 - AT LEAST 1,0m OF POST SHALL BE EMBEDDED IN THE GROUND.
 - WHERE JOINTED, THE END OF THE GUARDRAIL WHICH OVERLAPS ON THE SIDE OF THE TRAFFIC SHALL POINT IN THE DIRECTION OF THE TRAFFIC MOVEMENT.
 - THE HOLE SHALL BE BACKFILLED WITH A 1:12 CEMENT/ SAND MIXTURE AND COMPACTED WHILE AT OR NEAR THE OPTIMUM MOISTURE CONTENT IN LAYERS NOT EXCEEDING 100mm.
 - THE ERECTION OF GUARDRAILS IS ONLY TO BE UNDERTAKEN ON INSTRUCTION FROM THE ENGINEER.

ORIGINAL SCALE : 1 : 100

CONSTRUCTION RECORD (AS-BUILT) WORKS CONTRACT ENGINEER Name: _____ Prof. Reg. No.: _____ Date: _____		SANRAL PROJECT MANAGER Name: _____ Date: _____		DESIGNED BY NAME: G. LOUBSER Prof. Reg. No.: 880359 CHECKED BY: _____ NAME: J.B.W. STOLTZ Prof. Reg. No.: 980512 DRAWN BY: L.V. MERWIE		CONSULTANT APPROVAL Name: J.W.B. STOLTZ Prof. Reg. No.: 980512 Date: APRIL 2016		HEAD OFFICE 48 Tambote Avenue Val de Grace Pretoria 0184 PO Box 415 Pretoria 0001 South Africa Tel: (012) 844 8000		NORTHERN REGION 38 Ida Street Menlo Park Pretoria 0081 Private Bag X17 Lynnwood Ridge 0040 Tel: (012) 426 6200		ACCEPTANCE THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING for the SA NATIONAL ROADS AGENCY SOC. LTD. Date: _____		PROJECT DESCRIPTION MAPUTO DEVELOPMENT CORRIDOR (MDC) PRETORIA TO LEBOMBO BORDER POST ROUTINE ROAD MAINTENANCE DRAWING DESCRIPTION GUARDRAIL PLACING DETAILS		PROJECT NUMBER TRAC/MAINT-2019-01 DRAWING LOCATION DATA ROUTE: _____ SECTION: PRETORIA - LEBOMBO DRAWING TYPE ROADS - TYPICAL DETAILS BRIDGE/STRUCTURE No. _____ CONSULTANT DRAWING No. SNA-TP1915-C2 SCALE: AS SHOWN (A0)		SHEET 1 OF 1 SANRAL DOCUMENT # SNA-TP1915-C2-V1	
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P:17P1915 TRAC RHW/DO DRAWINGS/01 WORKING DRAWINGS/00 TYPICAL DRAWINGS/18 TYPICAL DETAILS/C - GUARDRAILS/TP1915-C2_GUARDRAIL PLACING DETAILS.DWG

SNA-TP1915-C2-V1